ENGINEERING NEWS-RECORD

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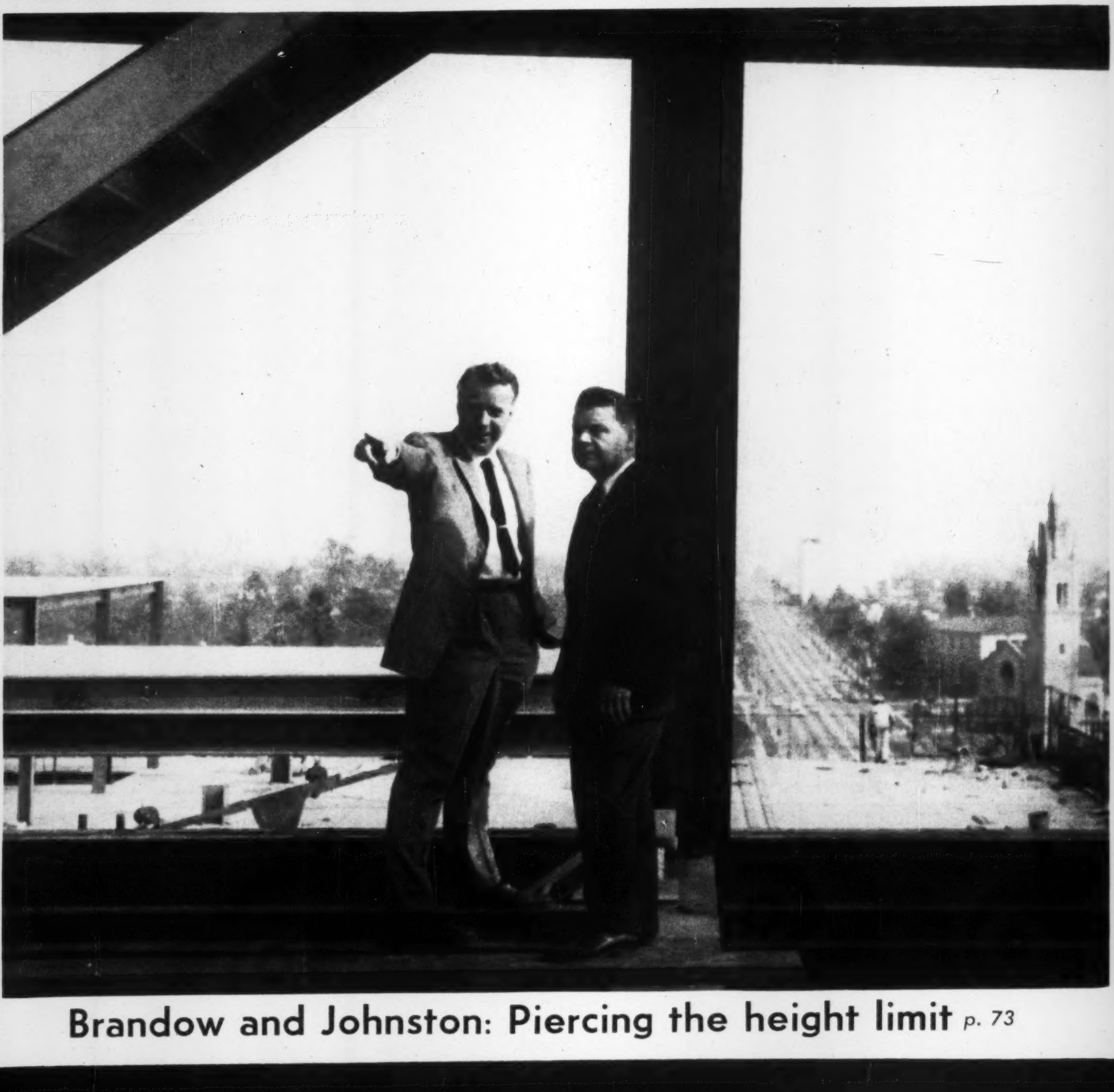

Brandow and Johnston: Piercing the height limit *p. 73*

E B POWER
UNIVERSITY MICROFILMS
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ANN ARBOR MICH

A McGRAW-HILL PUBLICATION

Used on the Nation's Highways Since 1906, Armco Drainage Products Offer You Proved Durability

Armco, Pioneer of Corrugated Metal Drainage Structures, Gives You Assurance of Low Cost Through Long Life

ABOVE: Old photo shows Armco man making an inspection of corrugated metal pipe installation.

FIFTY-FIRST ANNIVERSARY. Twin Armco Corrugated Metal Pipe culvert, installed in 1907 under a busy Ohio highway, is still in excellent condition today.

For the past half-century, Armco Corrugated Metal Drainage Products have been installed under highways all over the country. Many of these old structures are still giving good service today.

Having the advantage of the first Research Division in the steel industry, Armco started early in making field inspections and laboratory tests. These studies helped confirm the durability of Armco Products and aided in developing new ones.

Photos on this page typify the continuing research programs on the durability of Armco Products. To demonstrate their wide acceptance, many corrugated metal drainage products developed or originated by Armco are considered "standard" by highway engineers today.

Hundreds of Armco Sales Engineers, located in all sections of the country, are qualified to help you find an economical solution to drainage problems. And they can assist in expediting delivery of structures from one of the 55 Armco manufacturing plants.

More than 30 Armco Products are supplied for various highway, municipal, railway, and industrial applications. For specific data, write us. Armco Drainage & Metal Products, Inc., 3108 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

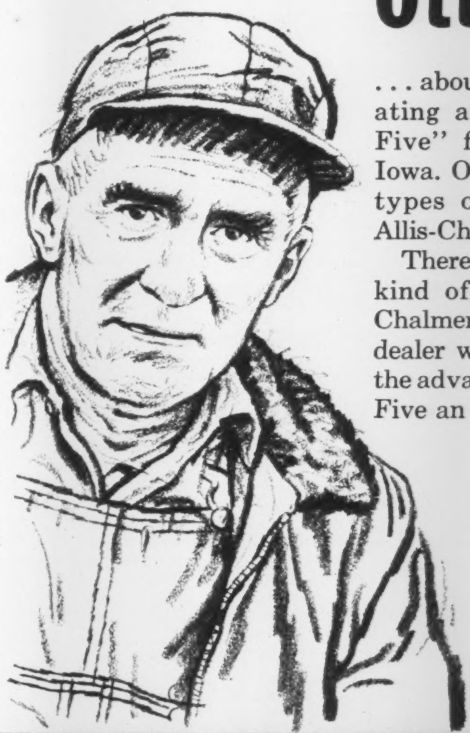
SMOOTH-FLO® Sewer Pipe, a new improved product, is designed to assure top flow capacity. It is a typical example of developments originated by Armco.

MULTI-PLATE® is typical of products developed by Armco that have become "standard" structures. This 1931 installation is still in fine shape.

ARMCO®

ARMCO CONSTRUCTION PRODUCTS

Ask Operator Otto Nikoley



. . . about motor graders. He's operating an Allis-Chalmers "Forty Five" for Buena Vista County, Iowa. Otto will tell you that of all types of graders, his choice is Allis-Chalmers every time.

There are good reasons for this kind of enthusiasm. Your Allis-Chalmers construction machinery dealer will be glad to demonstrate the advantages that make the Forty Five an operator's favorite.

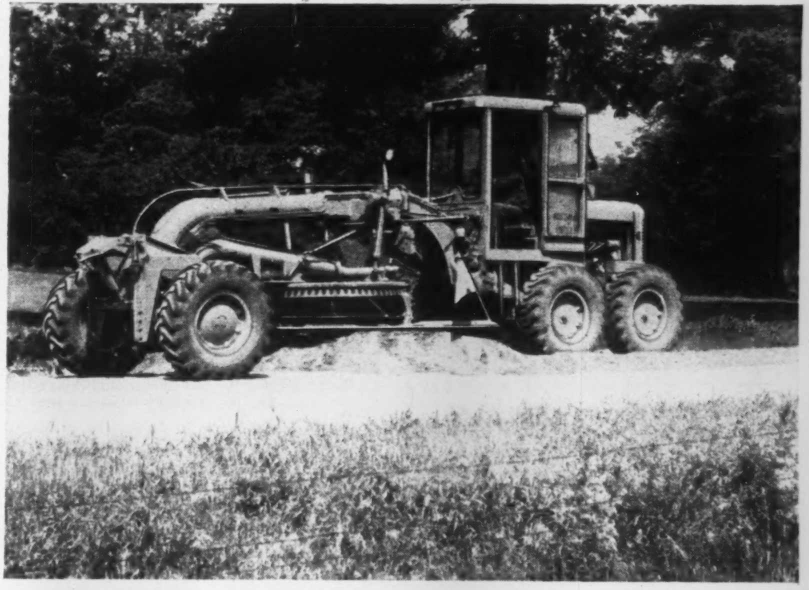
County road duty tests operator and machine

Otto Nikoley, Alta, Iowa, works full time maintaining roads for Buena Vista County.

Eight months a year, he and the Allis-Chalmers Forty Five motor grader work a program of finishing dirt and gravel roads. An average of three passes is all that's required to finish most of his jobs. During winter months, the grader is still productive. Equipped with snowplow, the machine is busy keeping roads open and traffic on the move.

Otto and the Forty Five work well together. There's plenty of power at hand to do the job. The Forty Five is easy operating, too. The platform is roomy and the deck is clear. Visibility is excellent all around, sitting or standing. And the blade's controls can't kick back. When Otto moves the lever, toggle engages or releases clutches surely, without wrist-snapping backlash.

Put your operators on Allis-Chalmers motor graders. More and more counties are stretching tax dollars by doing it. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wis.

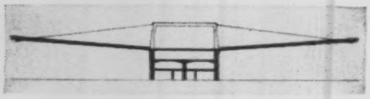


FORTY FIVE
120 brake hp • 6 speeds forward • 3 speeds reverse • 23,800 lb

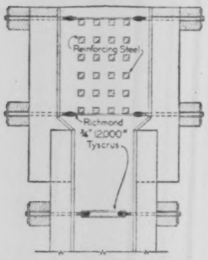
Look ahead...*move ahead*
...and stay ahead with **ALLIS-CHALMERS**

anchor walls

Richmond Tyscrus perform double function in unique hangar construction



The top walls of this air line hangar building at New York International Airport – built by Corbetta Construction Company – act as anchors for the steel cables which will support cantilever roofs over hangars on both sides. Richmond Tyscrus, at 4′ x 2′ spacing, hold the forms in place for a full-height continuous pour of these 12″ x 30′ x 100′ anchor walls. In addition, the Tyscrus support the reinforcing steel cages of 24 1⅝″ square bars, thermit-welded to provide 100 ft. long continuous reinforcing in the top beams of each wall. Weight of this reinforcement runs around 240 lbs. per foot.



TOP SECTION, ANCHOR WALL

An ingenious system of pouring pockets in the forms permitted easy access to the Tys for installing Tylags on the closing side. Assembly and stripping of forms was fast; Richmond 2-strut, ¾″ Tyscrus (published safe load 12,000 lbs., ultimate strength 20,145 lbs.) have self-cleaning threaded connections.

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Richmond
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315 SOUTH FOURTH ST · ST. JOSEPH MO

The new Richmond Handbook describes the full line of Richmond-engineered tying devices. Write to: RICHMOND SCREW ANCHOR COMPANY, INC., 816 Liberty Avenue, Brooklyn 8, N. Y. or 315 So. 4th St., St. Joseph, Mo

EIGHTY-FOURTH YEAR OF PUBLICATION

ENGINEERING NEWS-RECORD

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FAIRBANKS-MORSE SCALES ENGINEERED FOR INDUSTRY

MANAGE
METER
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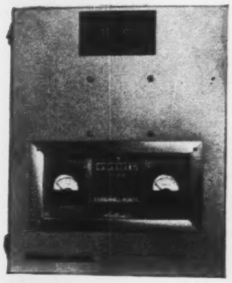
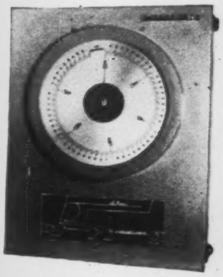
***with* F-M**
ELECTRONIC
SCALES

ELECTRONIC BELT CONVEYOR SCALE



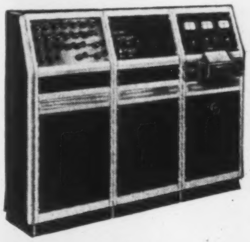
Weighs material "on the run." Electronically integrates load weight on given area of belt with speed of belt travel, and translates in accumulated tonnage on remote register. Eliminates need for separate weighing operation. Provides closer control over belt loading. Send for Bulletin ED-12.

MODEL CDO READ-OUT INSTRUMENT



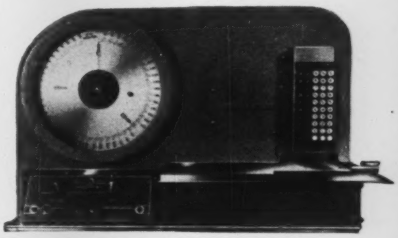
Translates weight message from electronic load cell into language of business machines. Feeds weight data directly to automatic typewriters, punch tape machines, adding machines, etc. Broadens scope of work performed by all equipment. Send for Bulletin ED-16.

MODEL EPC ELECTRONIC PROGRAM CONTROL



An automatic control unit operating from cards prepunched with formulas. Automatically selects correct ingredients, weighs them in weigh batch hopper, discharges them to subsequent process equipment. Completely controls all related processing cycles. Eliminates human error. Available with auxiliary controls for business machines. Send for Bulletin ED-15.

MODEL CR DESK INSTRUMENT FOR VISUAL AND RECORDED WEIGHTS



Most versatile of F-M standard table-mounted instruments. Prints weights in digits $\frac{5}{32}$" high. Eliminates manual operations and mental calculations. Open throat design receives weigh tickets of varying sizes from front or side. Available with single or double roll tape, combination ticket and roll tape, consecutive numbering devices, and other special features. Bulletin ED-2.

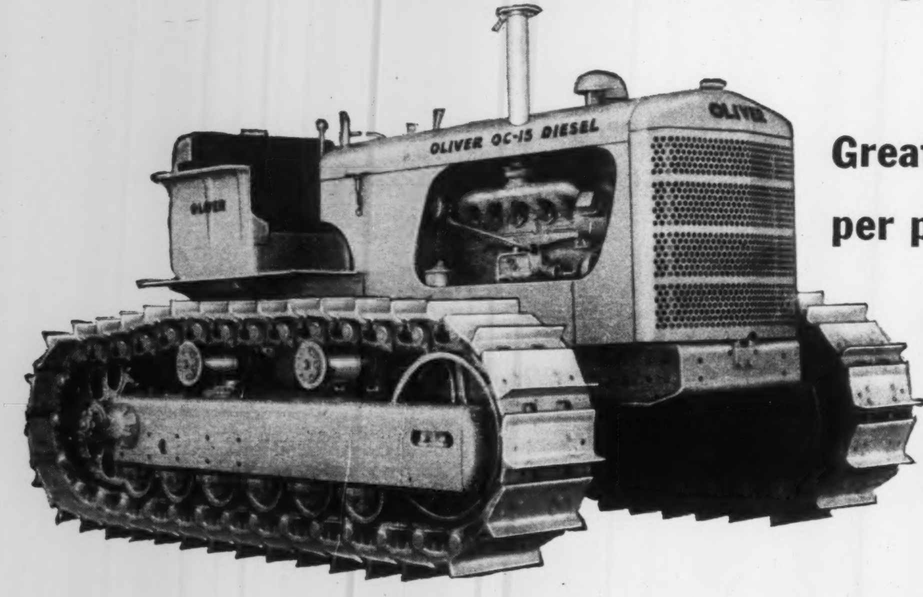
FAIRBANKS-MORSE

a name worth remembering when you want the BEST

PUMPS · SCALES · DIESEL LOCOMOTIVES AND ENGINES · ELECTRICAL MACHINERY · RAIL CARS
HOME WATER SERVICE EQUIPMENT · MAGNETOS

OLIVER

presents the mighty OC-15

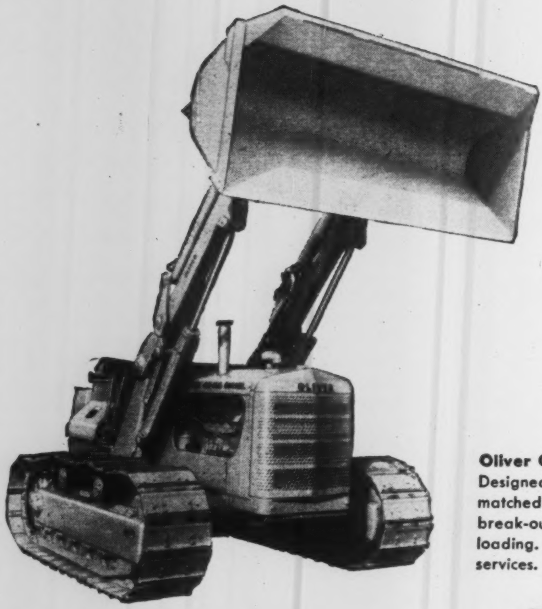


Greatest horsepower per pound of tractor

Greatest return per dollar invested!

In nationally recognized official tests, the OC-15 came out first for power against every other tractor in its size class. It's the power leader *any way you rate it!* In total, the OC-15 is the most powerful, performance-packed, profit-making crawler for its size yet. It's 1958 modern...and ready for you right now!

- Greatest power to weight ratio...a full 110 net engine h.p. High-torque, 529-cubic-inch diesel.
- Has more reserve power—you work faster, more efficiently with any mounted attachment.
- Handles wider work range—all at less cost per yard-moved with its fuel-thrifty full diesel. 24-volt starting.
- Long 87⅛″ crawlers with greater ground contact, higher flotation, tremendous traction! Six lower track wheels.
- Two-track turning action...easy air-steering operation.
- Heaviest-duty, service-saving design—reinforced and trussed at every stress point.
- Compare it on every count—price especially. You'll want the OC-15!



Oliver OC-156 Loader—gives a new speed and work range to your operations. Designed and factory-built as an integral tractor-loader, the big 2¼-yd. loader is matched to the full capabilities of the powerful tractor. Tremendous hydraulic bucket break-out action for toughest digging...high bucket lift for faster, more efficient loading. A lasting investment in lowest cost digging-loading-backfilling and other services.

OLIVER

THE OLIVER CORPORATION

Industrial Sales Div., 19300 Euclid Ave., Cleveland 17, Ohio

a complete line of industrial wheel and crawler tractors and matched allied equipment

B.F.Goodrich

LOUIS GARAVAGLIA INC.
CKG ASSOCIATES
CAT DW21
1001

New Rock Service Tubeless tires speed highway construction for contractor

CKG ASSOCIATES put 115 pieces of equipment on the job to speed completion of the Northern Illinois Toll Road near Elgin. Trucks, tractors, earthmovers, cement-mixing machines—all work 12 hours a day, 6 and 7 days a week. Helping this equipment stay on schedule are 8 different types of B.F.Goodrich tires, headed by the new Rock Service Tubeless. Fast, expert on-the-job tire service given by the local B.F.Goodrich dealer is one reason for this choice.

Another is outstanding tire performance. The new B.F.Goodrich Rock Service tire is built to its inflated shape. The whole tire flexes evenly—no *localized* stresses that often cause unnecessary tire failure. The B.F.Goodrich FLEX-RITE NYLON cord body withstands double the impact of ordinary cord materials, resists heat blowouts and flex breaks. Result: more retreadable Rock Service tires.

The Rock Service double chevron tread gives maximum traction. Rugged sidewalls defy rock bruises. And B.F.Goodrich Tubeless construction protects against punctures, cuts maintenance costs, is easier to service. Tires run cooler.

See B.F.Goodrich Rock Service Tubeless or conventional tires at your nearby B.F.Goodrich dealer's. He has a money-saving tire for every construction job. *B.F.Goodrich Tire Co., A Division of The B.F.Goodrich Co., Akron 18, Ohio.*

THERE'S A B.F.GOODRICH TIRE FOR EVERY CONSTRUCTION JOB

Silvertown
UNIVERSAL
ROCK LOGGER
SUPER TRACTION
TRACTION EARTH MOVER
ROCK SERVICE

B.F.Goodrich

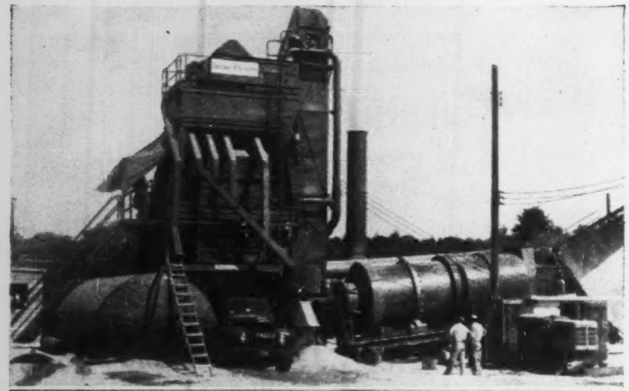
Specify B.F.Goodrich Tubeless or tube-type tires when ordering new equipment

Smileage

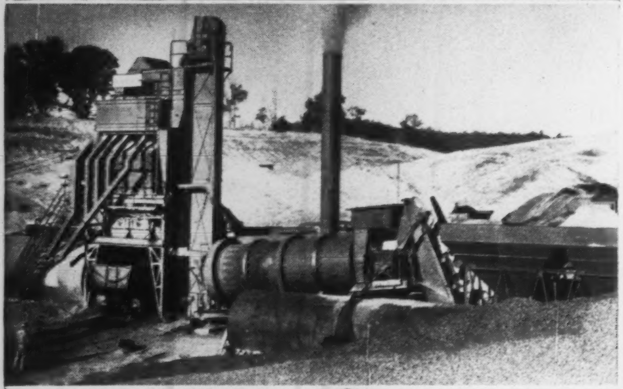
Your B.F.Goodrich dealer is listed under Tires in the Yellow Pages of your phone book

Why this paving contractor bought his 4th BatchOmatic . . .

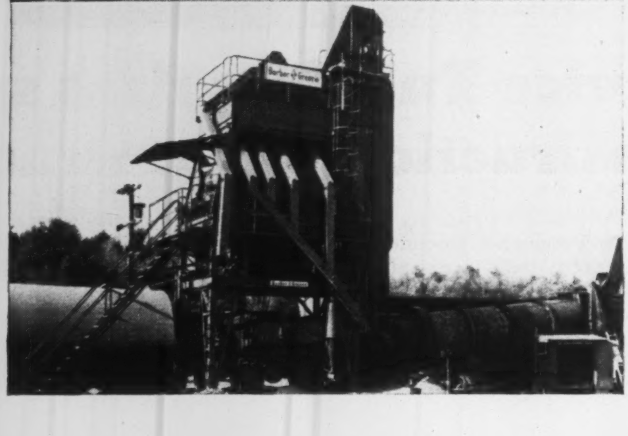
PLANT NO.
1
AUG. '55



PLANT NO.
2
MAY '56



PLANT NO.
3
SEPT. '56



PLANT NO.
4

Bayer and Mingolla had been in the asphalt paving business for many years before introduction of the BatchOmatic. During these years they had vast experience with many different makes of batchplants, and they are thus ideally suited to judge the merits of the various plants available.

Record production. Bayer and Mingolla's first BatchOmatic is a 4000-lb. Model 894. It had turned out 145,000 tons (including 20,000 tons for the Mass. Turnpike) by October, 1956. Plant No. 3 with a 2000-lb. rated capacity has consistently produced as much as 84 tons per hour.

Record ease of erection. Although set up by a crew completely inexperienced with the BatchOmatic, Plant No. 1 was ready to produce just three days after erection started.

Record low repair costs. The second Model 894 BatchOmatic has produced more than 102,800 tons for turnpike and state work. Total repair costs for this tonnage amounted to $200 or just 2/10ths of a cent per ton of mix produced. After producing more than 145,000 tons, Plant No. 1 is still using the original paddles and pugmill liners.

Exclusive features include:

Simultaneous weighing of all sizes of aggregate . . . eliminates the human element in achieving accuracy and maximum capacity.

Instant change-over from automatic to manual operation . . . provides mixes for the drive-in trade . . . instantly reset to preset repetitive cycle operation.

New Dyna-Mix pugmill . . . gives thorough coating in less time than any other pugmill.

Instant, positive inspection of aggregate gradation and weight.

Plant No. 4, a Model 894, has just been shipped and will probably be in operation before this ad appears.

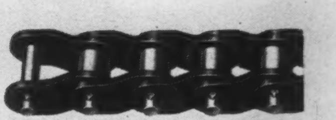
Literature on request.

Barber-Greene BG

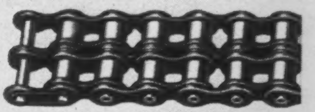
AURORA, ILLINOIS, U.S.A.

57-10-WB

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT



REX CHABELCO STEEL CHAINS... the most widely used chains in construction machinery. Built-in clearances and rugged construction make them ideal for this service.



REX ROLLER CHAINS... precision-made quality chains for the higher speed power transmission requirements. Unique Glide-Fit design assures easy field coupling and uncoupling.

SHAFER SELF-ALIGNING ROLLER BEARINGS... combine the low rolling friction of a ball with the high load-carrying capacity of a roller. High integral self-alignment.

REX BELT CONVEYOR IDLERS... smooth-rolling, rugged units that stand up under the tough conditions of construction service...assure longer life for both belt and idler.

Look for these signs of PLUS values

Take a good look when you're in the market for construction equipment...a close look at the components in the machine. Where you see the trademarks "Rex" and "Shafer," you can be sure that you're getting the plus values that mean extra operating life...freedom from premature breakdowns that cause job hold-ups and lost production. You *know* that the construction machinery manufacturer spared no effort in selecting his chains, bearings and belt idlers...that he specified *and got* the best!

But how about tomorrow? How can you be sure that you'll keep that plus value performance? Here's one good way. Be sure that you get your replacement parts from the original equipment manufacturer through his distributor. Then, you're sure of keeping that profit-making performance you want. CHAIN Belt Company, 4633 W. Greenfield Ave., Milwaukee 1, Wisconsin.

CHAIN BELT

WORLD
PROTECTION
WIDE

UP HE POPS...
LIKE MAGIC!

William T. Krall, Manager
Singapore

It takes know-how and skill to provide expert insurance protection on your properties and operations overseas. It also takes world-wide personnel who know local customs, laws and insurance requirements—who "pop up" from nearby to help you when a loss occurs.

When you are insured through AFIA you have that kind of protection. You enjoy the services of men like Mr. William T. Krall, AFIA's manager in Singapore. He is a foreign insurance expert with years of experience—one of AFIA's 600 representatives abroad who help provide your business with insurance protection unsurpassed.

Ask your insurance agent or broker to discuss your foreign insurance problems with AFIA

AFIA

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An association of 22 American capital stock fire, marine, casualty and surety insurance companies providing insurance protection in foreign lands

Reader Comment

Glued Steel Bridge

SIR—Your report on the use of adhesives in building construction (ENR Dec. 12, 1957, p. 24) should be extended by their use in steel bridges.

A 183 ft span pedestrian and piping truss bridge was built with polyester resin connections over the Lippe-Branch-Canal, Germany, in 1956. The joints, sealed with a mixture of resin and catalyst, can carry over 2,130 psi shear in less than an hour after application of the adhesive. Temperatures from + 212F to − 22F had no effect on the strength of the joints. Brittle fracture of this glue may occur, however, at temperatures lower than − 22F.

The resin was brushed on the gussets and members, in layers from 0.008 in. to 0.02 in. thick. The bond between the steel surfaces increased with the thinness and uniformity of the resin layers.

The box-section bottom chords were shop glued. The top chords composed of two 12.6 in. channels forming a closed box section, and the web members, 6.3 in. I and WF sections, were field glued. The allowed shearing stress on the resin surfaces was 853 psi.

Erection was facilitated by four to six high-tensile bolts set in holes with play at the ends of each member. These bolts were not considered in the computation of the required glued surfaces. However, they increased the frictional resistance in the joints and thus provided an advantageous combination with the action of the adhesive.

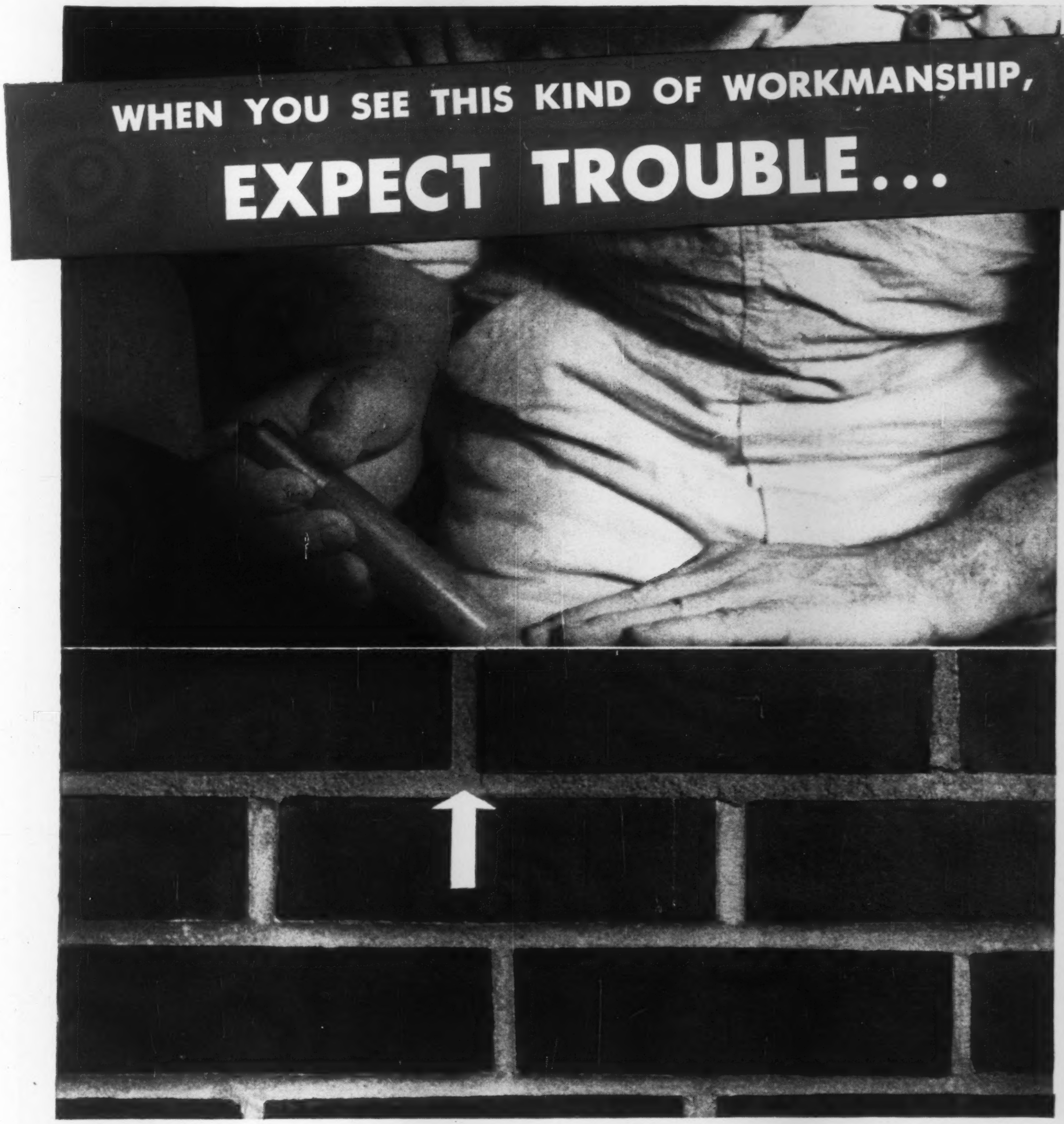
LOUIS BALOG
Consulting Engineer
Binghamton, N. Y.

Trinity Is Highest Earthfill

SIR—In the article concerning Swift Dam on the Lewis River in Washington (ENR Jan. 2, p. 32) you call it the highest earthfill in the world at 512 ft. However, the Bureau of Reclamation's Trinity Dam, now under way on the Trinity River in northern California, will stand 537 ft above the lowest point in the cutoff trench.

(*Continued on page 12*)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.


WHEN YOU SEE THIS KIND OF WORKMANSHIP,
EXPECT TROUBLE...

GOOD workmanship is one of the most important factors in preventing leaky brick walls.

Good workmanship includes wetting the brick, securing full head and bed joints, backplastering the face brick—*and laying the brick carefully to keep the bond. The position of the brick should never be shifted after the mortar has stiffened.*

Expect trouble when brick are shifted or tapped into place after the mortar has stiffened. Cracks will result and the wall may leak.

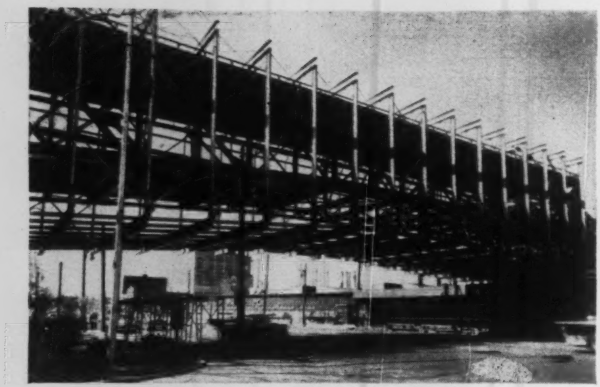
Brixment mortar has high water-retaining capacity. It resists the sucking action of the brick. It stays plastic and workable longer. Brixment mortar therefore makes it easy for the bricklayer to lay the brick accurately, before the mortar has stiffened.

Brixment mortar has great plasticity, high water-retaining capacity and bonding quality, great resistance to freezing and thawing, and freedom from efflorescence. Because of this *combination* of advantages, Brixment is the leading masonry cement on the market.

BRIXMENT

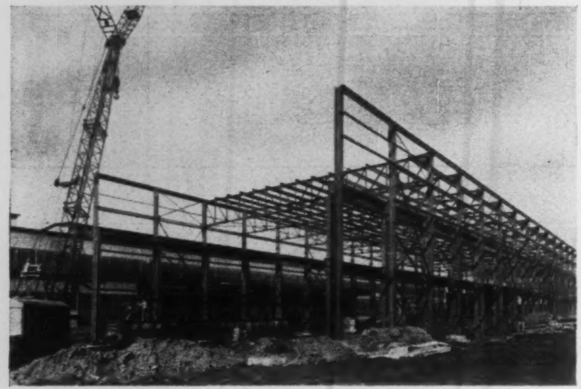
LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

Look where **HIGH STRENGTH BOLTS** give **better connections**

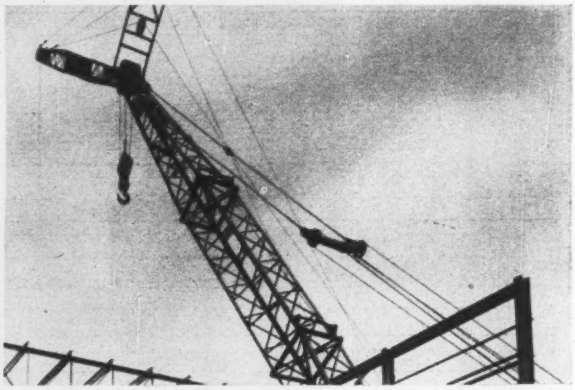


BRIDGES Here's one put up in Detroit with RB&W High Strength Bolts. They were used because they install faster than rivets, stay tight, withstand all kinds of cyclic loads, including wind, vibration.

BUILDINGS More and more multi-story steel framed buildings are being erected with high tensile bolts. It means faster construction, dollar-savings per ton of erected steel, less noise, more safety.



INDUSTRIAL PLANTS Erectors of mills, power houses, heavy industrial works and factories are taking advantage of RB&W High Tensile Bolts to give joints more strength in shear and in tension against impacts and stress changes due to operation of cranes and heavy machinery.



EQUIPMENT RB&W High Strength Bolts are doing a permanent retightening job on heavy-duty equipment that has deteriorated due to rivets failing. They've saved large costly cranes. By specifying the use of high strength bolts in your new equipment, you can avoid such problems entirely, save money and downtime.

AISC approves the use of high strength bolts anywhere in place of rivets. Local building codes permit it. So there's no reason why you shouldn't get the savings in time and costs they offer... the better, stronger joints they make.

And remember—the quality and uniformity of RB&W High Tensile Bolts and their conformance to ASTM A325 have been confirmed in a report by the nationally known New York Testing Laboratories, Inc.

Give your men this booklet: "How to work with high strength bolts." Write for as many free copies as you need. Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, N. Y.

RB&W

113th year

Plants at: Port Chester, N.Y., Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee, New Orleans; Denver; Fargo (N.D.). **Distributors** from coast to coast.

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look ahead with LEAD

This New Orleans Bridge will be the longest cantilever type span in the U. S., using over 18,000 gallons of Red Lead primer to lock out corrosion. *Modjeski and Masters: Engineers*

RED LEAD keeps Newest and Longest Cantilever Bridge in the pink!

Why Red Lead? Because Red Lead has proved itself the all 'round best protection for steel.

In salt water or fresh. Corrosive atmospheres. Through years of brutal bridge-breaking weather.

That's why Red Lead paint was selected as the primer for the new pride of New Orleans above. And why it's the standard for an infinite variety of other steel structures—from tankers to tanks, ships to structural steel.

Red Lead paint is available to meet the most exacting requirements. Quick-drying . . . low cost . . . extreme corrosive and weathering conditions.

Have a special problem? We'll be glad to help you develop a specific formulation to solve it. Write today.

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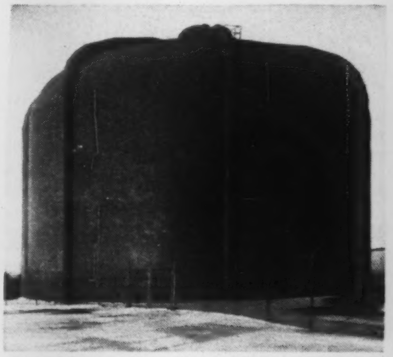

New Metropolitan Boston Water Tank, 3.7 million gallon capacity, is primed inside and out with Red Lead Paint!

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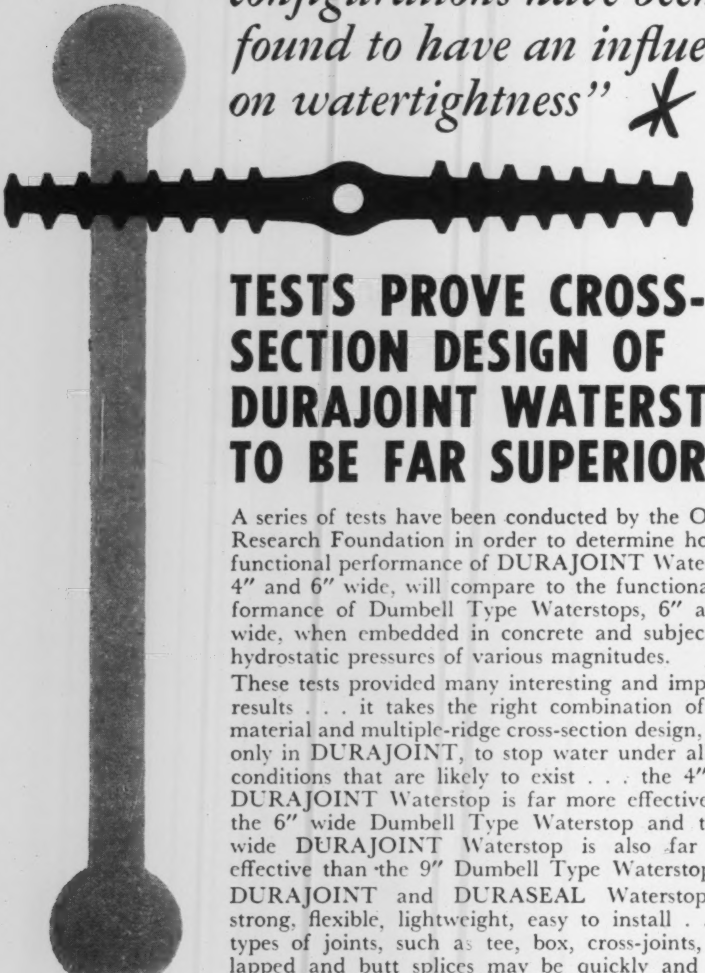

"Cross-Sectional configurations have been found to have an influence on watertightness" *

TESTS PROVE CROSS-SECTION DESIGN OF DURAJOINT WATERSTOP TO BE FAR SUPERIOR!

A series of tests have been conducted by the Ontario Research Foundation in order to determine how the functional performance of DURAJOINT Waterstops, 4" and 6" wide, will compare to the functional performance of Dumbell Type Waterstops, 6" and 9" wide, when embedded in concrete and subjected to hydrostatic pressures of various magnitudes.

These tests provided many interesting and important results . . . it takes the right combination of PVC material and multiple-ridge cross-section design, found only in DURAJOINT, to stop water under all joint conditions that are likely to exist . . . the 4" wide DURAJOINT Waterstop is far more effective than the 6" wide Dumbell Type Waterstop and the 6" wide DURAJOINT Waterstop is also far more effective than the 9" Dumbell Type Waterstop.

DURAJOINT and DURASEAL Waterstops are strong, flexible, lightweight, easy to install . . . all types of joints, such as tee, box, cross-joints, overlapped and butt splices may be quickly and easily made on-the-job without the use of special equipment or skilled labor.

Be sure to investigate these interesting results yourself . . . just mail the coupon (below) today, for your free copy of Technical Report No. 4 that contains complete technical data, as to how the performances of waterstops compare, plus actual copies of the test reports. If you are interested in watertight waterstops, this report should prove to be one of the most interesting technical manuals you've ever read.

* Journal of American Concrete Institute, Discussion 52-7, V. 28, No. 6, Dec. 1956, Part II, Proceedings V. 52, Page 1151

DURAJOINT TECHNICAL INFORMATION Center
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Dept. 10

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☐ Have representative call.

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FIRM__________

ADDRESS__________

CITY__________ STATE__________

It looks like we are going to have to claim Trinity as the highest earthfill.

Ottis Peterson
Assistant to the Commissioner of Reclamation
Washington, D. C.

Editor's Note: There's no doubt that Trinity is now the highest earthfill built or under construction. When our Swift article was prepared, Trinity was listed in the specifications as "approximately 505 ft high from foundation." As in the case of most every dam, the contractor had to excavate a little deeper than planned. It wasn't until very late last year, after our article was in production, that the 537 ft measurement was made.

Need Engineers?

Sir—Much has been written about the lack of young engineers entering the construction industry and how bad the industry needs them. I would like to give a view from the June 1958 civil engineering graduate's side.

Recently I called on 15 contractors and inquired about employment in June, 1958, when I graduate. None were in need of an engineer in June, and only four said they might need an engineer in June if they obtained more work for the year 1958. Only one expressed the policy of retaining engineers on a year-round basis; the remainder would give no assurance that, even if they did hire me, I would have work beyond the 1958 season. Do you still wonder why C. E. grads desert the construction field for the security of a full-time job in other industry or governmental agency?

Richard D. Maxwell
State University of Iowa '58
Iowa City, Iowa

Add Missiles Engineer

Joint-ventures to work on Titan missile facilities for the Air Force were named in ENR Feb. 27, p. 23. And the name of Leo A. Daly Co. was omitted.

CALENDAR

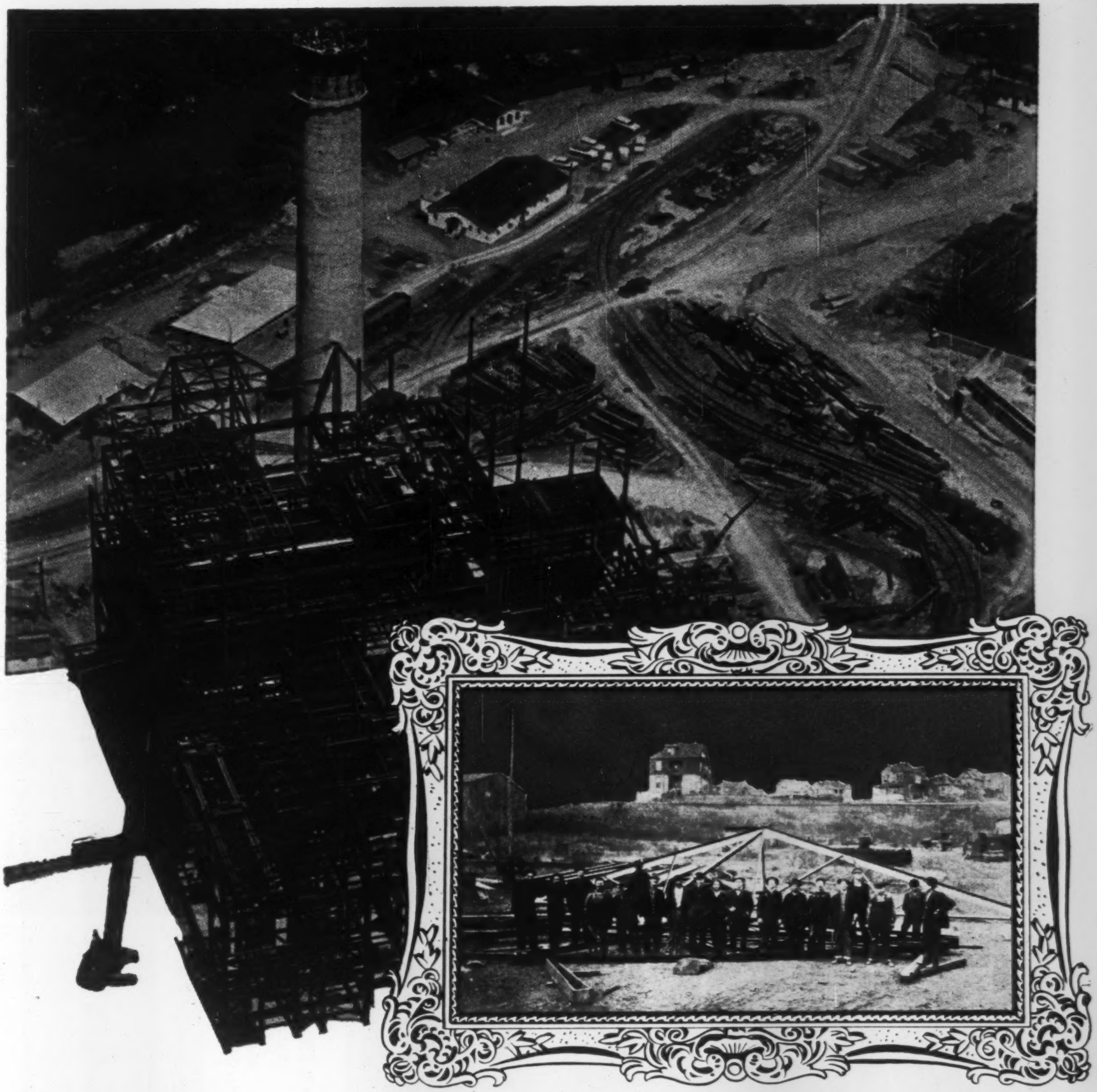
New Jersey Sewage and Industrial Wastes Association, 43rd annual meeting. Traymore Hotel, Atlantic City, N. J., Mar. 12-14.

National Association of Corrosion Engineers, annual conference and exhibition. Civic Auditorium, San Francisco, Calif., Mar. 17-21.

Nuclear Engineering & Science Conference, 4th congress, in conjuction with 1958 Nuclear Cong., International Amphitheatre, Chicago, Ill., Mar. 17-21.

Conference on Light and Vision, University of Michigan, Ann Arbor, Mich., Mar. 19-21.

American Congress on Surveying & Mapping, 18th annual meeting, Shoreham Hotel, Washington, D. C., Mar. 23-26; in conjunction with **American Society of Photogrammetry,** 24th annual meeting, Mar. 20-29.



The cherished photograph from our distant youth and the recent picture of a major project which we fabricated and erected, Appalachian Electric Power Co's. 450,000 kw power plant at Carbo, Va., encompass more than years. The pictures define a long period of devoted service. They presage another 50 years of the same unusual commodity! If you'd like to know more about Bristol Steel, we'd like to send you our 50th Anniversary brochure. Won't you request it on your letterhead?

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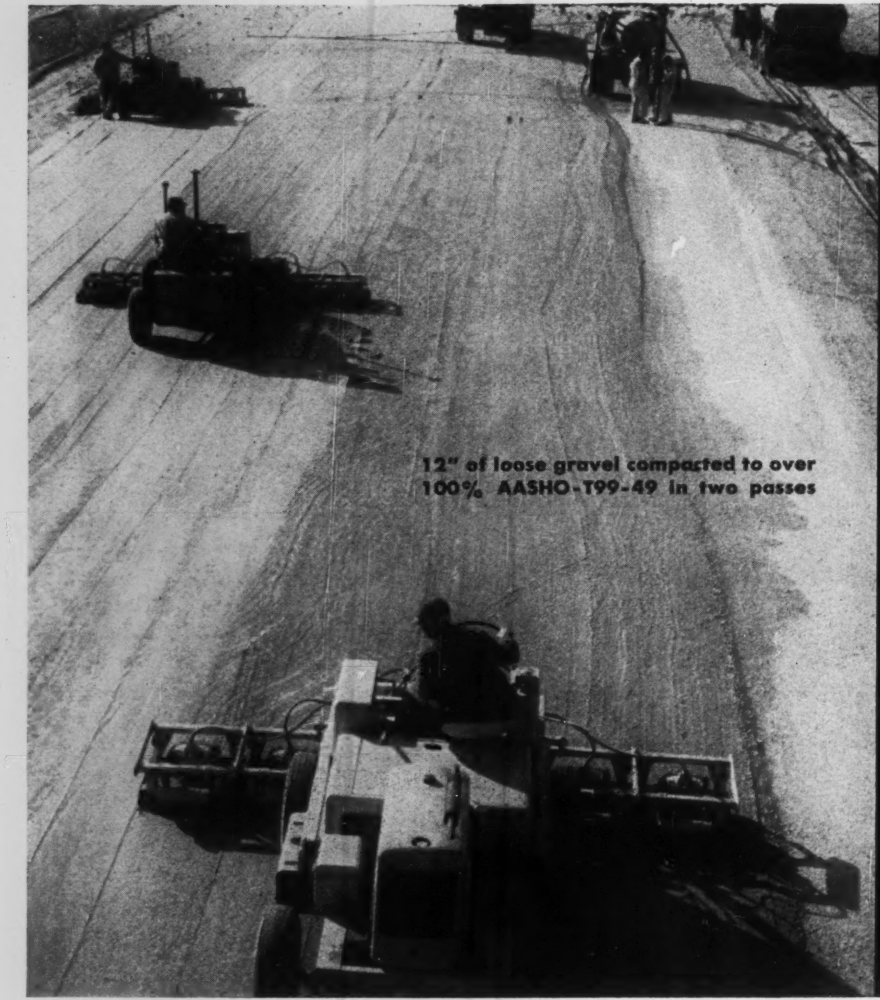
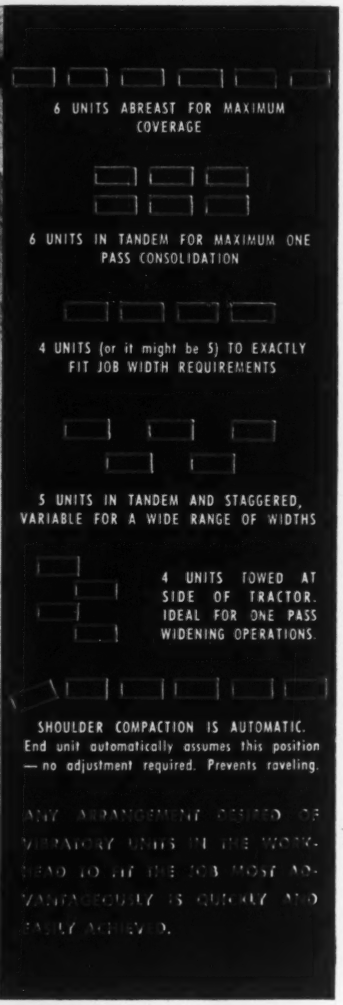
AMERICAN INSTITUTE OF STEEL CONSTRUCTION INC. AISC FOUNDED 1921



12" of loose gravel compacted to over 100% AASHO-T99-49 in two passes



6 UNITS ABREAST FOR MAXIMUM COVERAGE

6 UNITS IN TANDEM FOR MAXIMUM ONE PASS CONSOLIDATION

4 UNITS (or it might be 5) TO EXACTLY FIT JOB WIDTH REQUIREMENTS

5 UNITS IN TANDEM AND STAGGERED, VARIABLE FOR A WIDE RANGE OF WIDTHS

4 UNITS TOWED AT SIDE OF TRACTOR. IDEAL FOR ONE PASS WIDENING OPERATIONS.

SHOULDER COMPACTION IS AUTOMATIC. End unit automatically assumes this position — no adjustment required. Prevents raveling.

ANY ARRANGEMENT DESIRED OF VIBRATORY UNITS IN THE WORKHEAD TO FIT THE JOB MOST ADVANTAGEOUSLY IS QUICKLY AND EASILY ACHIEVED.

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MORE OF THEM USED ON AMERICAN TURNPIKE PROJECTS THAN ALL OTHER PAN-TYPE COMPACTORS COMBINED!

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AND FOR SPOTS OTHERS CAN'T REACH

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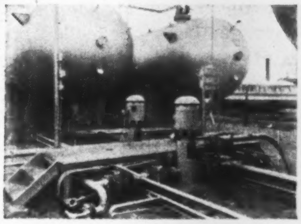

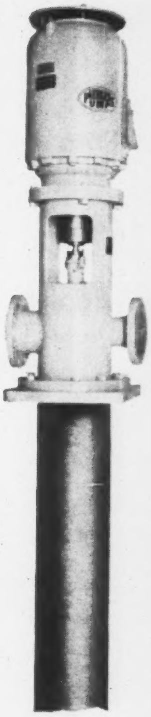

"Fill it up!" and nearly 60 million automobiles take an annual 56 billion gallon drink. Helping to "set 'em up again" for aircraft, automobiles, L-P gas and diesel engines, virtually every type transportation, is the Peerless Hydro-Line® vertical pump. Available in two basic types, process and transfer, the Peerless Hydro-Line is serving in the handling of hydrocarbons such as gasoline, butane, propane, hot oils, etc.; hot or cold water; mild acids, basic and salt solutions. This flexibility of application, plus its space-saving vertical design, its outstanding NPSH (net positive suction head) characteristics and its ready adaptability to future system requirements, has made the Peerless Hydro-Line truly one of America's most versatile pumps. For complete information on the Peerless Hydro-Line vertical pump line, write for Bulletin No. B-1700.

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ENGINEERING NEWS-RECORD

Vol. 160, No. 11 March 13, 1958

Number of copies printed this issue, 82,195

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THE CONSTRUCTION WEEK

UNEMPLOYMENT WOES—Civils, and most other kinds of engineers, were hurting this week in many parts of the country because of recession-born layoffs, according to a spot check of employment agencies. The civil engineer situation was not yet pinpointed, but a portion of the unemployment was undoubtedly due to winter shutdowns of construction projects. However, a number of civil consulting offices reported they could use a lot more work. There was also talk that some employers of engineers—not identified as to industry—were invoking the old law of supply and demand to cut new engineering employees' salaries.

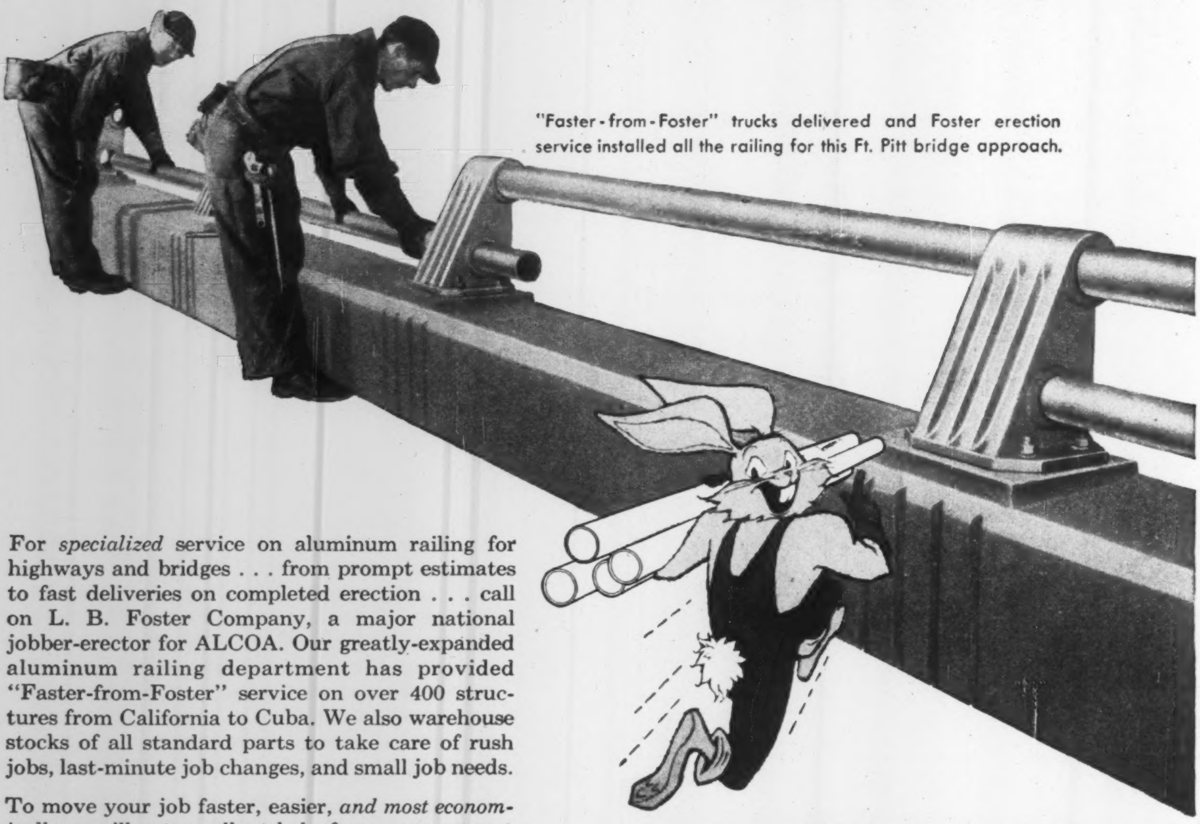
CONSTRUCTION UNEMPLOYMENT—Unemployment in the building and construction industry was described last week as ranging from "not serious" in some areas to "acute" in others, with union leaders in many states reporting that 20-25% of their construction workers are out of work. Estimates made by delegates attending the AFL-CIO Building Trades Department Legislative Conference (see page 121) presented a spotty picture but one generally viewed as "very grave." Oregon and Maine were reported as hardest hit with—35-45% jobless. Maryland, Mississippi, Kansas, New Mexico, Pennsylvania turned in estimates of 10-15%. Those with an estimated 20-25% out of work included Alabama, Colorado, Illinois, Massachusetts, Montana, Tennessee. Detroit reported the heaviest unemployment in 15 years; Ohio said one out of eight unemployment compensation claimants is a construction worker. Some looked for the situation to grow worse; a few, like Nebraska, saw relief by summer as scheduled projects get under way.

BIGGEST DOME WILL SPAN 375 FT—Union Tank Car Co. announced last week that it is building the world's biggest clear-span dome in Baton Rouge, La., to house the company's regional maintenance and tank-car repair facilities. The building will be circular, with a base diameter of 375 ft and a center height of 116 ft. Enclosed floor area will total 110,000 sq.ft. The structure will consist of 320 steel panels, fabricated in 12 sizes on the site from standard $\frac{1}{8}$ in. steel sheet and 4 in. tubing. Synergetics, Inc., a Raleigh, N. C., firm headed by Buckminster Fuller, designed the dome.

ONE CONSTRUCTOR BUYS ANOTHER—All construction is basically alike, or so Ira M. Leonard, president of the Charis Corp., may have reasoned last week as he acquired Taylor Construction Co. and Taylor Engineering and Guniting Co., Miami-based hotel builders. Charis makes women's foundation garments.

"FASTER FROM FOSTER"

another 7 miles of ALCOA aluminum bridge railing . . . for the Penn-Lincoln Parkway



"Faster-from-Foster" trucks delivered and Foster erection service installed all the railing for this Ft. Pitt bridge approach.

For *specialized* service on aluminum railing for highways and bridges . . . from prompt estimates to fast deliveries on completed erection . . . call on L. B. Foster Company, a major national jobber-erector for ALCOA. Our greatly-expanded aluminum railing department has provided "Faster-from-Foster" service on over 400 structures from California to Cuba. We also warehouse stocks of all standard parts to take care of rush jobs, last-minute job changes, and small job needs.

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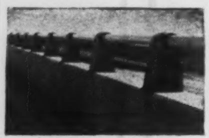
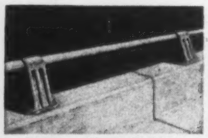


Pennsylvania Turnpike

Oklahoma Turnpike



Northern Illinois Highway

San Francisco Freeway

Dallas-Ft. Worth Turnpike

City of Denver bridges

Georgia Highway bridges

Penn-Lincoln Parkway
Calumet Skyway
Patapsco Tunnel Project
Pontchartrain (La.) Expressway
Morrisville (Pa.) Bridge
Evansville (Ind.) Bridge
Oklahoma City Blvd. Bridge

WASHINGTON OBSERVER

- **New public works agency discounted**
- **Tax cut plans coming behind public works**
- **Politicos differ on utility relocation costs**
- **Stream pollution officials see more support**

● **There is little prospect—yet—that a new public works agency** will be established to handle anti-recession public works. Some Democrats in Congress are pushing the idea, with Senate Leader Johnson in the forefront, but the measures Washington is proposing fall short of any such PWA or WPA organization.

The President warned against such measures in his anti-recession letter to Republican leaders (see page 114). Besides, the short-term public works programs can be undertaken inside established agencies—the Corps of Engineers, Reclamation Bureau, the housing agencies, and so on.

—

● **The next major turn on the anti-recession route will be tax cuts.** The Administration and Democratic leaders have been staving off demands by congressmen to cut both individual and corporate income taxes. House Tax Committee Chairman Wilbur Mills will resist these efforts for another month.

The latest reduction in the Federal Reserve Bank discount rates, additional mortgage money being made available through Fannie Mae, and other stimulants for housing starts have yet to be tested. If they don't show clear evidence of offsetting the downturn, then tax reduction will be pushed.

—

● **The Administration soon will present legislation on reimbursement of utilities which must relocate lines because of highway construction.** The proposal is to ban the use of federal funds used to pay for relocation of facilities occupying public rights-of-way in which they have no vested property interest. As it is now, states whose laws require compensation to utilities are entitled to pay for 90% of this out of federal funds, if the interest of the highway network is involved.

The Administration would treat utilities as it does any other property owner and says federal funds should be used to the same extent. But it would not contribute where utilities are using non-utility property.

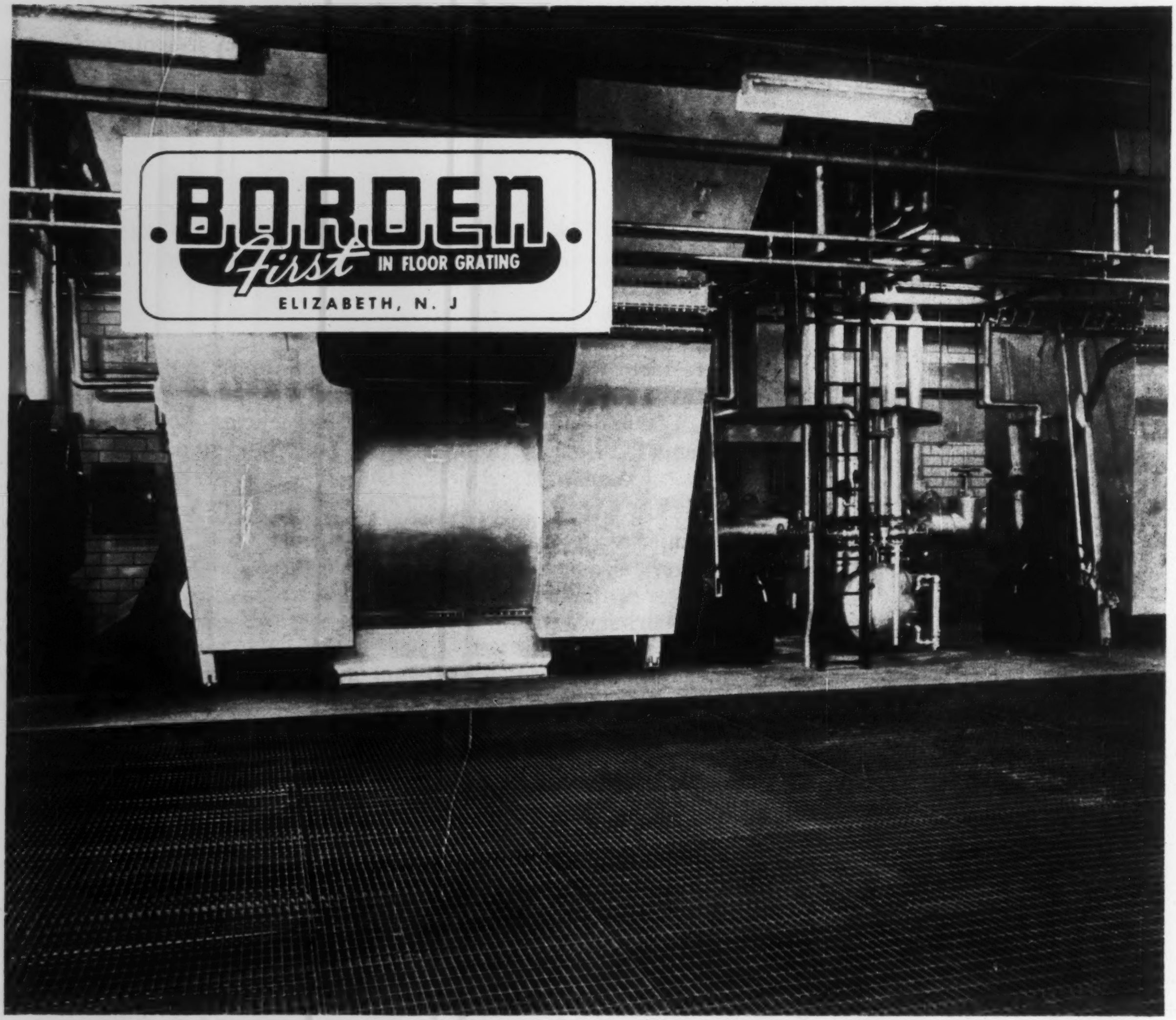
Democrats in control of Congress aren't showing much interest in the proposed amendment to the Highway Act of 1954. They're more occupied with plans to boost highway spending overall as an anti-recession measure.

—

● **Advocates of stronger stream pollution enforcement think they've gotten support from an unexpected quarter.** Edward J. Cleary, Executive Director of the Ohio River Valley Water Sanitation Commission, notes that 37 states operate under laws requiring a company to have a state permit or approval of plans before discharging its wastes into a stream. But Mr. Cleary claims that according to a recent survey, "It appears that only half of the industries who are required to have a permit are presently meeting this obligation."

Other survey findings were presented by Mr. Cleary to state and interstate polution control administrators in advance of a three-day conference with U.S. Public Health Service officials.

Federal officials in charge of anti-pollution laws figure they stand a good chance of getting $3 million from Congress this year to carry on their work. Appropriations Committee members seemed favorably disposed, officials report. This would be $1 million over what they got a year ago.



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MARCH 13, 1958

ENGINEERING
NEWS-RECORD

Steel Shapes

**The picture is changing:
Demand for steel has sharply declined. Mill production and fabricating capacities have been boosted. So, fabricators are now offering . . .**

Structural Steel—When You Want It

The nation's structural steel fabricators, faced with a sharp drop in demand—or bookings—from the boom period of 1956, have accepted the challenge of the times and embarked on a "hard sell" campaign of a type almost unknown in their industry since World War II.

Fabricators and their organization, the American Institute of Steel Construction, have built their sales drive around a series of regional meetings across the country with state highway officials, consulting engineers and architects. Since April, 1957, fabricators and AISC regional representatives have come together at 37 area meetings to drive home the point that "fabricated structural steel can be delivered promptly and when requested." The most recent such sales session was held last month in Ames, Iowa, and the next one is scheduled for Minneapolis, Minn.

In addition to telling the steel users that fabricated structural steel now is available when requested, the industry is promising that the extreme shortages and long waiting time of recent years are unlikely to occur again in the near future.

• Demand down, backlogs down—The grass-roots sales promotion that is combined with a direct-mail operation proclaiming that structural steel is readily available, results from three basic factors: Bookings are down sharply from two years ago, capacity for the production of all heavy structural shapes is up and the fabricators are cutting deeply into their backlogs.

Just last week the AISC reported on January's fabricated steel picture. Bookings (demand) in that month were 49% below January, 1957 and 67% under January, 1956. The order backlog at the end of January was shaved to 2.8 million tons, a figure 34% below the same month of last year. And 1.4 million tons of the existing backlog is scheduled for fabrication over the next four months.

Although the comparison between the January months of 1957 and 1958 was bleak, the AISC found some cheer in the fact that January's bookings were 15% above the low level of December. Also, shipments are holding up. In this year's first month, they were 316,742 tons—off only 1% from December and 9% higher than in January of last year.

• A slow full year—For the full year of 1958, the institute anticipates a stabilization of demand, a relatively stable rate of shipment, and a big increase in capacity. The fabricators are therefore in a position to go out and sell their product with the full knowledge that they are in a position to deliver.

Estimated capacity for all heavy structural shapes, which also takes in materials for railroad cars and ships, is placed at 8 million tons this year by the American Iron and Steel Institute. This is a 14.3% increase over 1957 and a 29% increase over 1956, the peak year of construction activity.

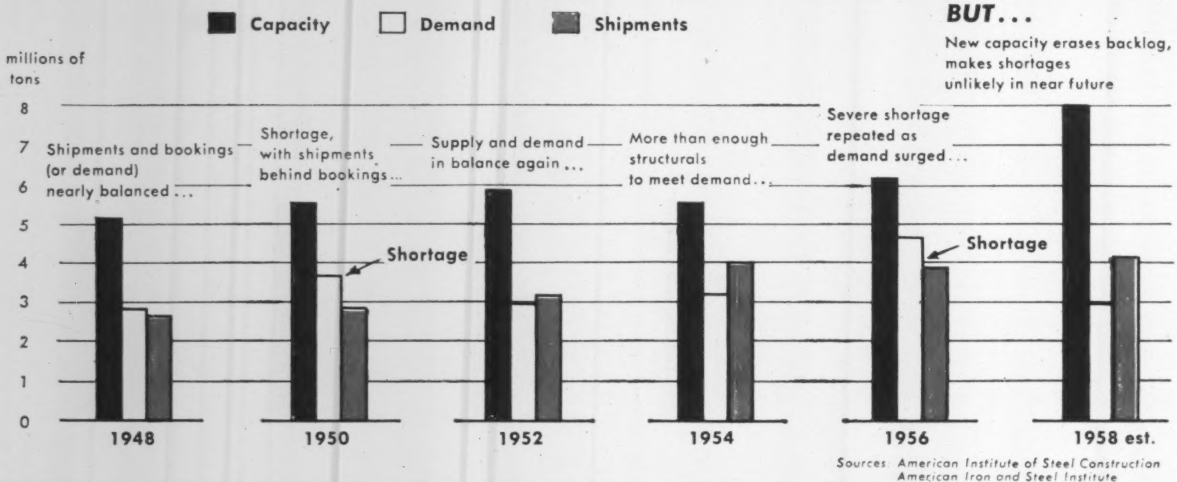
But bookings for fabricated structural steel, according to the AISC, are expected to come to 3 million tons this year—about the same as the total reported last year, but a slide of 36.2% from 1956.

Shipments of fabricated structural steel this year, however, are expected to come close to those of 1957—4.2 million tons. Shipments in both years represent a 10.5% boost over 1956.

• Delivery when wanted—Based on a questionnaire distributed to 24 directors of the AISC representing all areas of the U. S. and also an ENR price survey of fabricators throughout the nation (ENR Jan. 2, p. 72), it is obvious that structural steel fabricators are working in a buyer's market. The directors reported that it is now possible to start erection of a 500 ton rolled-beam bridge in from two to 12 months. The latter figure was a solitary extreme, however, because the time ranged from two months to a top of six months according to the other 23 regional directors. The average time came to four months.

Erection estimates for the same job ordered one year ago went from four months to 14 months, with the average being slightly more than nine months. Two years ago, an order for such a bridge would have been met in four to 18 months, with the average time placed at 10 months.

Starting time given for erection of a 2,000 ton wide span bridge with plate



From 1948 on, shortages of structural shapes occurred periodically...

Sources: American Institute of Steel Construction, American Iron and Steel Institute

girders or a moderate sized tier building was equally as good. Of the 22 out of 24 directors replying to the question, answers ranged from two months to nine months. The average time was 5½ months.

One year ago, erection starting times for the same type type of projects would have ranged from six months to 18 months with the average being 12 months. The same held true for two years ago.

• **Competition for jobs**—And with an abundance of material and a sharp drop in demand, comes keen competition. The directors reported that the number of fabricators bidding a job now ranges from five to 15 as compared with one year ago when only three to six bidders were seen. Based on the figures from the reporting directors, the average number of bidders for a moderate size project averages nine. A year ago it was four.

Competition also has brought with it some changes in contractual details. Escalator clauses apparently are on the wane. Seven directors reported they now don't obtain such a clause and eight said they "seldom" include such a clause. Five said they do include an escalator clause in their contracts "in most cases" while five said they obtain the clause "frequently."

Bid prices also have softened as a result of the drop in demand and the severe competition being encountered in the business. Although the AISC would not discuss the price issue, a nationwide survey of structural steel fabricators conducted in January by ENR showed that prices are being shaved. The bid price cuts ranged from 2% to 30% depending upon the region.

And only last week in Dallas, Tex., school authorities reported that bids for schools were coming in much lower than estimated, with the most dramatic price drop showing up in the erected price of fabricated structural steel. In this category, prices came in at $250 a ton as compared to last year when prices were $375 a ton.

In the ENR survey, the firms reporting were not sure where or when to look for improvement. They were generally uncertain as to how long the condition would continue, but most thought that prices would remain on the down side until inventories were worked off. It was believed that this would require several months.

• **It must be sold**—With the entrance of a buyer's market for any product, sales efforts must be increased and steel is no exception to the rule. The structural steel fabricators, aware of this business fact, are taking appropriate action. Thus the face-to-face sessions with steel users, although the greatest emphasis up to now has been placed on state highway officials because of the extensive use of structural steel anticipated in the federal interstate highway program. A secondary reason is the comparative ease of planning meetings in a central spot where highway officials are generally located.

Of the 37 meetings held since the start of the sales drive, 25 have been with state highway officials and the remainder with architects and engineers in the fields of industrial and commercial construction. However, the AISC plans to step-up the meeting schedule with these groups because they represent an even larger volume of potential business than that expected for highway work.

Most of the meetings are informal, round-table discussions with attendance ranging from 20 to 30 persons, although one at Columbus, Ohio, last year drew 200. Generally, half the group consists of the heads of local structural steel fabricating companies and the remainder are highway officials. AISC representatives also are present.

• **Competing products** — The sessions also are aimed at driving home the point that steel is the product to use when it or concrete presents a choice. The fabricators are acutely cognizant that they are not alone in the market place, although based on comments from the 24 directors queried, they generally feel secure about their position.

Six directors, however, were fully aware of competition from other than structural steel fabricators, when asked, "over the next few years, what is the outlook for structural steel in your area as compared to concrete—either put in place or prestressed?"

The answers from this group were a plain "highly competitive" to "It's a hard fight, but hopeful."

Twelve of the group said the outlook was "good," "very good," or "excellent." The remaining six directors were either undecided or said the situation was good, but pointed to some specific exceptions in usage.

• **The over-all market**—The AISC is optimistic and in one market alone—highways—it looks to a bright business situation.

The AISC estimates that 22.5 million tons of fabricated structural steel will be required for the highway program, based on the 13 year schedule first established. On this basis, highways alone will require 1.8 million tons by 1960. These estimates are reduced proportionately with the extension of the program to 16 years. Most of the tonnage will be required for bridges, and in 1957 alone, highway bridge work represented about 30% of the AISC's total industry bookings of 3.1 million tons. In 1956, bridges accounted for approximately 20% of the 4.7 million tons booked.

These great demands seen for the industry are not expected to present a supply problem. The AISC says that the structural steel fabricating industry has ample capacity to handle both the highway program and "any foreseeable demands in industrial and commercial construction." In addition to capacity increases, the industry has boosted its own manpower during the last 10 years. The AISC said that the number of employees was increased from 27% to 122% by 85% of the fabricators. None of the firms reported fewer employees.

• Supreme confidence—The AISC finds these figures reassuring because it goes on record at the fabricator-highway-engineering meetings with, "even if the volume of general construction were to rise to record levels, there still would be enough capacity in the steel mills and in steel fabricating plants to handle that load as well as the highway program." Those in attendance are then urged to design in steel.

There are some steel users, however, that remember past years of steel shortages, allocations and lengthy delivery schedules and for such individuals the AISC unhesitantly traces the background of those years.

• When the troubles began—The AISC says the over-demand for structural steel started in the late 1930's. During the depression, most of the steel-producing capacity was idle, with the operating rate declining to 19.5% of capacity in 1932. In 1938, the industry was severely criticized for having over expanded. But three years later, faced with the huge demands of World War II, an additional 10 million tons of new ingot capacity was added by the mills to support war production.

Following the war, there was a tidal wave of demand for new buildings, cars and household appliances. In addition, the industry had to replace its obsolete equipment and develop new products. Just as supply was catching up with demand, the Korean War started. This placed new strains on the industry in order to supply both the government with heavy machinery and the consumer with light goods. A boost in capacity was again required.

In late 1953 and 1954, there was a drop in the demand for structural steel. The steel mills took the opportunity to expand their structural shape finishing mills, and to do this, they had to discontinue some existing production facilities in order to create added capacity. The expansion itself required steel—according to a rule-of-thumb, for every four tons of new capacity developed, one ton of steel is required for structures and production equipment.

• Came the boom—But unexpectedly and suddenly, construction surged ahead in 1956, creating excessive demand for structural steel at a time when the mills were tearing down and refinishing buildings and facilities to provide new capacity. It was then that the severe structural steel shortage struck the entire construction industry.

The AISC points to the series of events as unusual and not of a type likely to occur again.

It is not resting its case on capacity alone, however. The AISC also is calling attention to, and actively selling, its research program for better and more economical products.

Included in this phase of its program are the use of high strength bolts in place of rivets, both for shop and field connections; use of high strength low-alloy steels; development of plastic design, and continued research in welding.

In ENR Next Week

First-Quarter Roundup:

Construction Cost and Estimating Guide

This year for the first time ENGINEERING NEWS-RECORD will publish four special reports on construction costs instead of the former, single annual issue. The first of these handy cost roundups will appear in next week's issue.

Timeliness is the prime purpose in this move from annual to quarterly frequency for rounding up information in the many areas of ENR's weekly cost reporting.

Next week's roundup will feature building costs and building cost indexes that have become available during this first quarter. The quarterly reports to follow will similarly feature: highway costs in June, materials prices in September, and labor costs in December.

More Money Needed

Midwest highwaymen ask speedup in federal funds

All fourteen state highway departments in the Mississippi River Valley, from the Dakotas to Oklahoma, are geared to speed up their interstate highway programs to the original schedule in the 1956 Federal Aid Highway Act. Some say they can even better it, but all agree that to do the job, they must have more federal funds soon.

Resolutions adopted at the forty-ninth annual meeting of the Mississippi Valley Conference of State Highway Departments in Chicago last week emphasized these requirements. Most of the 410 highway engineers attending the three-day conference are confident they can solve their problems of location, design, right-of-way acquisition, and construction. But as to costs and financing they went on record as saying: "It has become increasingly evident that the intent of Title I of the 1956 Highway Act cannot be realized without additional funds being provided. This is evidenced by the new cost estimates as well as the reduced apportionments which have resulted from the controls contained in Title II.

The highway departments want Congress to do three things:

- Provide sufficient additional funds to get the interstate highway construction timetable back on schedule.
- Make these additional funds effective in fiscal 1959 so this year's construction season can be used fully.
- Make 1960 and subsequent apportionments as near to the mid-calendar year of 1958 as possible. (Congressional apportionment of funds for primary, secondary and urban federal-aid roads also should be made at mid-calendar year to speed up these programs.)

Safety Standards Needed For Moving Sidewalks

Moving sidewalks for transporting people present safety problems that ought to be solved by a safety code developed under the procedures of the American Standards Association. This was the consensus of government officials, manufacturers and users at a conference at ASA headquarters last week.

The group recommended that the ASA Committee A17 develop safety standards for passenger conveyors. This committee developed the ASA standard safety code for elevators, dumbwaiters and escalators, which has been adopted by almost 1,000 municipalities. It also recommended that the committee enlarge its membership with representatives of organizations concerned with passenger conveying equipment.

Contractors Face Added Tax Burden

Supreme Court decision may make contractors liable for state taxes on materials used in federal projects

State and local tax authorities seem to have come into a bonanza under recent rulings by the U. S. Supreme Court.

Under three cases decided March 3 by the court, billions of dollars of federally owned property—up to now considered constitutionally exempt from state taxation—is now subject to state and local personal property and real property taxes.

If the broadest implications of the decisions are borne out—as now seems the case—it means non-federal taxing authorities can charge government contractors—including construction firms—a tax on government-owned materials and work-in-process, and levy a real property tax on any businessman using federally owned buildings while working on government contracts or private business.

Because most states will only now get on the bandwagon, it is impossible to measure the full impact of the new rulings. But estimates of the possible cost to the government run into hundreds of millions of dollars. Here is what the rulings say:

(1) All government-owned plants leased or used by private companies are subject to state or local real property taxes at full value, payable by the companies.

(2) All government-owned materials—raw materials, work-in-process, parts, durable and non-durable tools, and inventories—in the hands of government contractors are subject to state or local personal property taxes, payable by the contractor.

Actual assessment of these taxes is made against the firm using government plants or land or using government materials. But there is no doubt most of the financial burden will be shifted to the federal government. That is why the government has joined companies fighting such taxes. And that also is why the state victory on the personal property and real property tax issues is a substantial qualification of the old principle that federal property is generally immune from state taxation.

For years, this principle gradually has been whittled away, as the court has refused to extend federal immunity from state taxes to private companies doing business with the government. But the new decisions are a long step indeed. Here's some of the background:

- In 1937, the Supreme Court upheld a privilege tax on the gross receipts earned by a construction firm building a federal lock and dam on the Kanawha River in West Virginia.
- In 1941, the court upheld a state sales tax on materials purchased by a government contractor for performing a government contract. The court held the contractor was the actual purchaser, not the government.
- The court seemed to step back in 1954, when it struck down as unconstitutional an Arkansas sales tax levied on tractors purchased by government contractors building a Navy ammunition depot. The contract specified the contractors would act as "purchasing agents" for the government in buying supplies and equipment for project, with title to the purchased articles passing directly to the United States. On these contract provisions, the court held the federal government was the actual purchaser and so the state could not constitutionally tax the tractors without express legislation by Congress.

This 1954 decision created state demands for corrective legislation. And by coincidence, the U. S. Senate last week passed a bill to reverse this 1954 decision, just one day after the court issued its new tax rulings. This bill, S. 6, would authorize states to collect sales taxes on materials bought by government contractors, even though the federal government is made legal owner of all materials acquired under the contract.

The bill probably will be acted on promptly by the House. Efforts in the House to make the Senate bill much broader have held up action. Now, the Supreme Court's new rulings virtually make it unnecessary for state tax supporters to continue pressing for a broader law. Here are the latest cases:

• Tax on government-owned materials—Detroit and Wayne County, Mich., in applying a personal property tax to the Murray Corp., included all parts, materials, and work-in-process acquired by the company to perform its airplane parts subcontract for the government. Under the contract, when Murray Corp. received partial payment or progress payments on its work, title passed to the government though Murray Corp. retained possession.

Murray Corp. and the government protested inclusion of federal property in the tax, argued it was immune.

The Supreme Court, splitting 5-4, rejected this argument. Justice Hugo Black ruled the tax was applied as a "levy on a private party possessing government property which it was using or processing in the course of its business."

It makes no difference, says the ruling, that the tax was labelled a "personal property" tax, rather than a privilege or use tax. Applied on all personal property throughout the state, the tax is not discriminatory against persons holding federal property and is not unconstitutional, Justice Black held.

• Tax on government real property—Under a 1953 Michigan law, when tax-exempt land or buildings are used by a private party in a business conducted for profit, the private party is subject to taxation to the same extent as though he owned the property.

Detroit applied this law to Borg Warner Corp., which leased a government plant for its own business purposes; Muskegon taxed a government plant being used by Continental Motors Corp. to fill several government supply contracts it held.

Both companies and the government argued this tax also violated the tax immunity of federal property.

The court voted 7-2 in favor of the state law. Justice Black ruled the tax was merely one imposed "on a party using tax-exempt property for its own beneficial use and advantage."

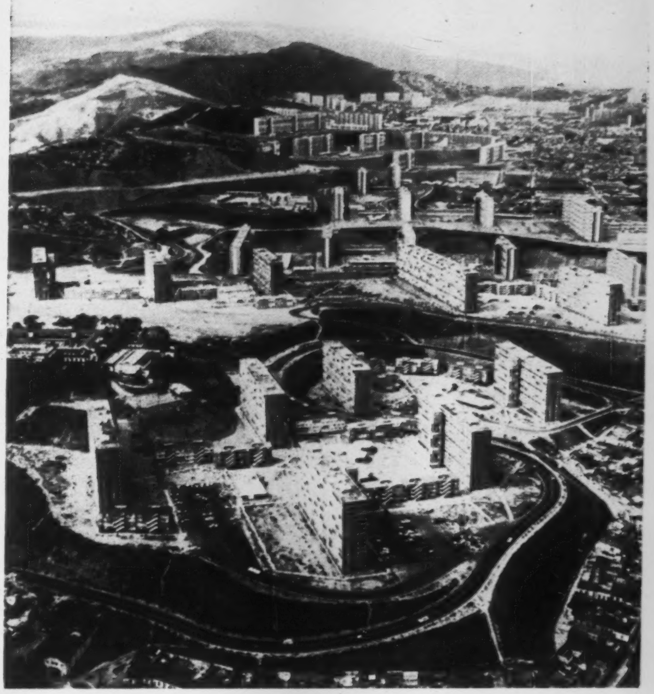
In all three cases, Justice Black ruled that so far as the Constitution is concerned, it makes no difference that some or all of the burden of the taxes might fall on the federal government. Congress may if it wants, he said, "confer immunity by statute where it does not exist constitutionally."

Attorneys think localities can now impose a tax similar to that in the Murray case, without even changing the wording in existing personal property tax laws. At most, it appears state legislatures and local municipalities have only to make minor changes in both personal and real property tax laws to come within the tax schemes approved in the Michigan cases.

Though government attorneys will attempt to limit the scope of these new rulings in the future, it appears construction firms can now be taxed under the Murray decision for the privilege of using materials or equipment owned by the government. So long as such materials are being used for the contractor's own gain, the Supreme Court now says the materials are taxable.

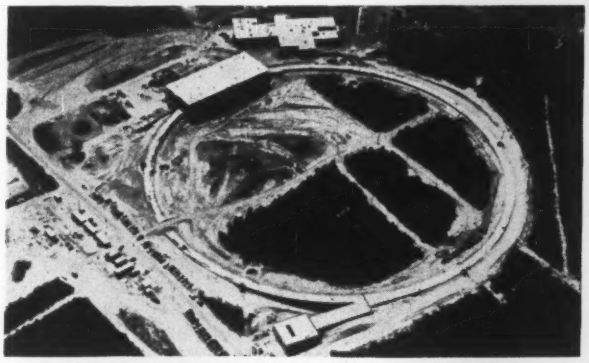
About the only real argument left to government lawyers, however, is that states cannot tax federal contractors using federal materials unless they also tax state contractors using state materials. A personal property tax or privilege tax imposed on one and not on the other would discriminate against the federal government; government lawyers would argue the Constitution bars such discrimination.

Engineering News-Pictures



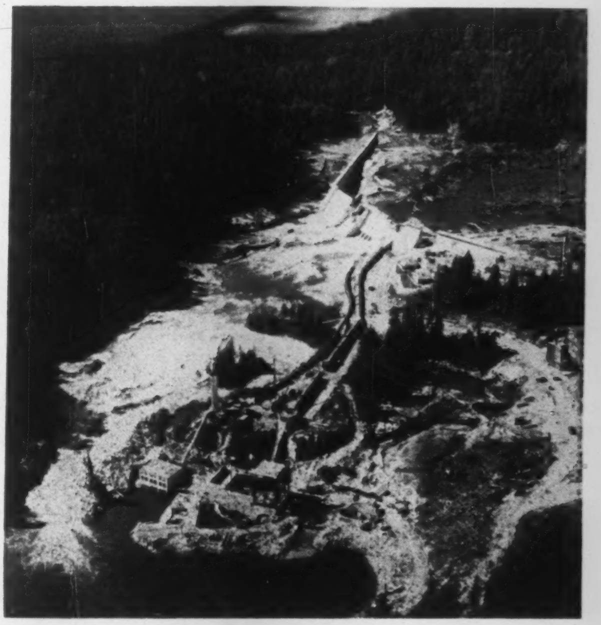
Huge Apartment Project

If Caracas' hopes for a World's Fair in 1960 are fulfilled, visitors are certain to have their attention called to this massive, low-rent and cooperative-ownership housing project in the heart of the Venezuelan capital. More than 8,000 slum shacks were razed to make way for the 59 reinforced concrete apartment buildings, 4 and 15 stories high, in the project, which was completed just prior to the overthrow last month of the Perez Jimenez government that sponsored it. Construction cost is estimated at $90 million.



Fast Track for Protons

The half-mile will take next to no time at all when they start running at Brookhaven National Laboratory. The 842 ft dia track being built at the Long Island (N. Y.) installation is a synchrotron, for magnetic acceleration of subatomic particles.

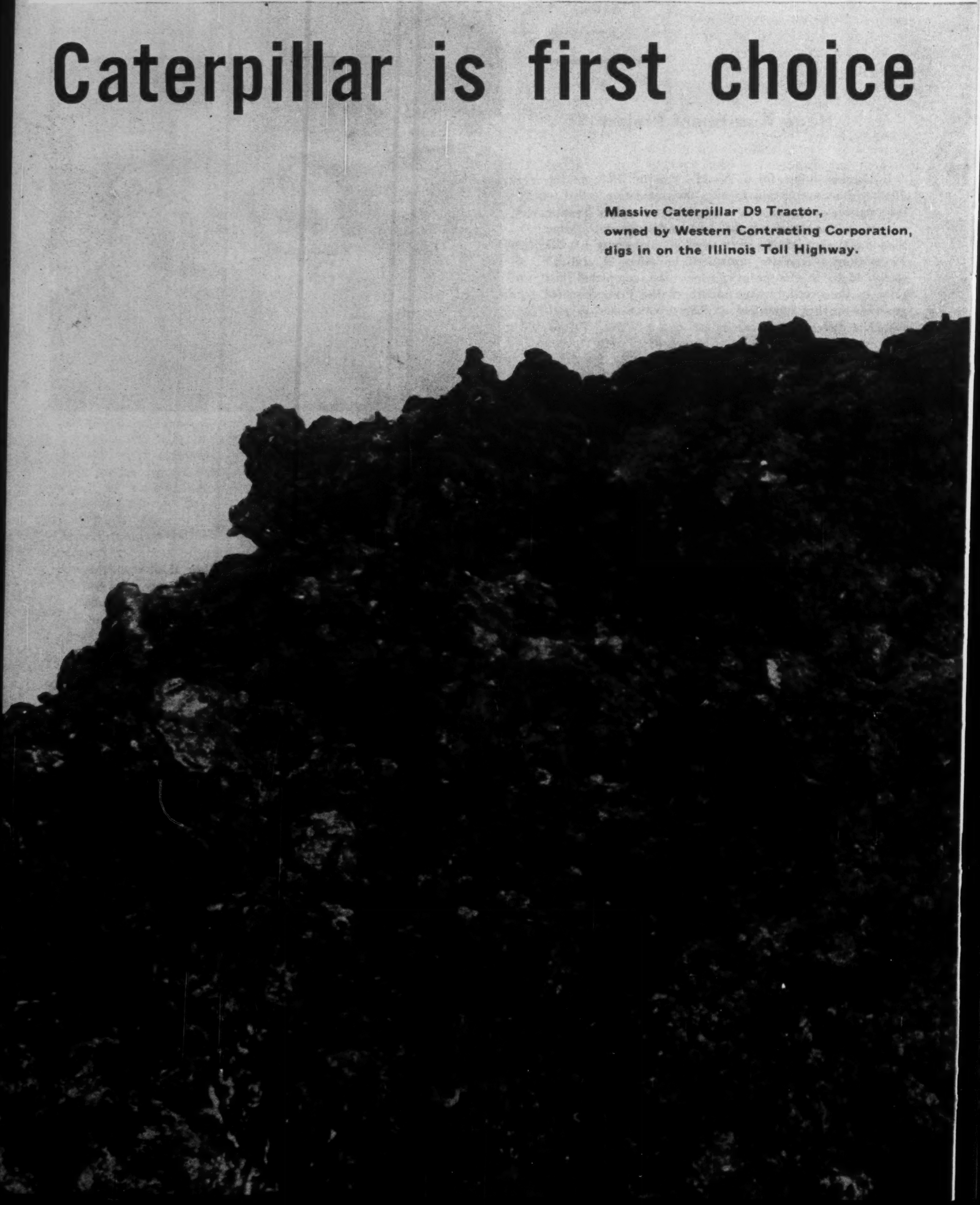


Canadian Hydro Plant Opens

Water now being impounded by a 1,500 ft long, 75 ft high concrete dam across the Clowhom River, northeast of Sechelt, B. C., will plunge—through a 900 ft long, 14 ft dia steel penstock—some 175 ft to spin a new 40,000 hp turbine (right) for the Clowhom Hydro-electric Generating Plant. Photo shows the $6.5 million British Columbia Electric Company's project in its final stage of construction. The penstock, surge tank, steel work and radial gates were built by Dominion Bridge Co. of Montreal.

CATERPILLAR REPORTS ON THE ILLINOIS TOLL HIGHWAY

Caterpillar is first choice

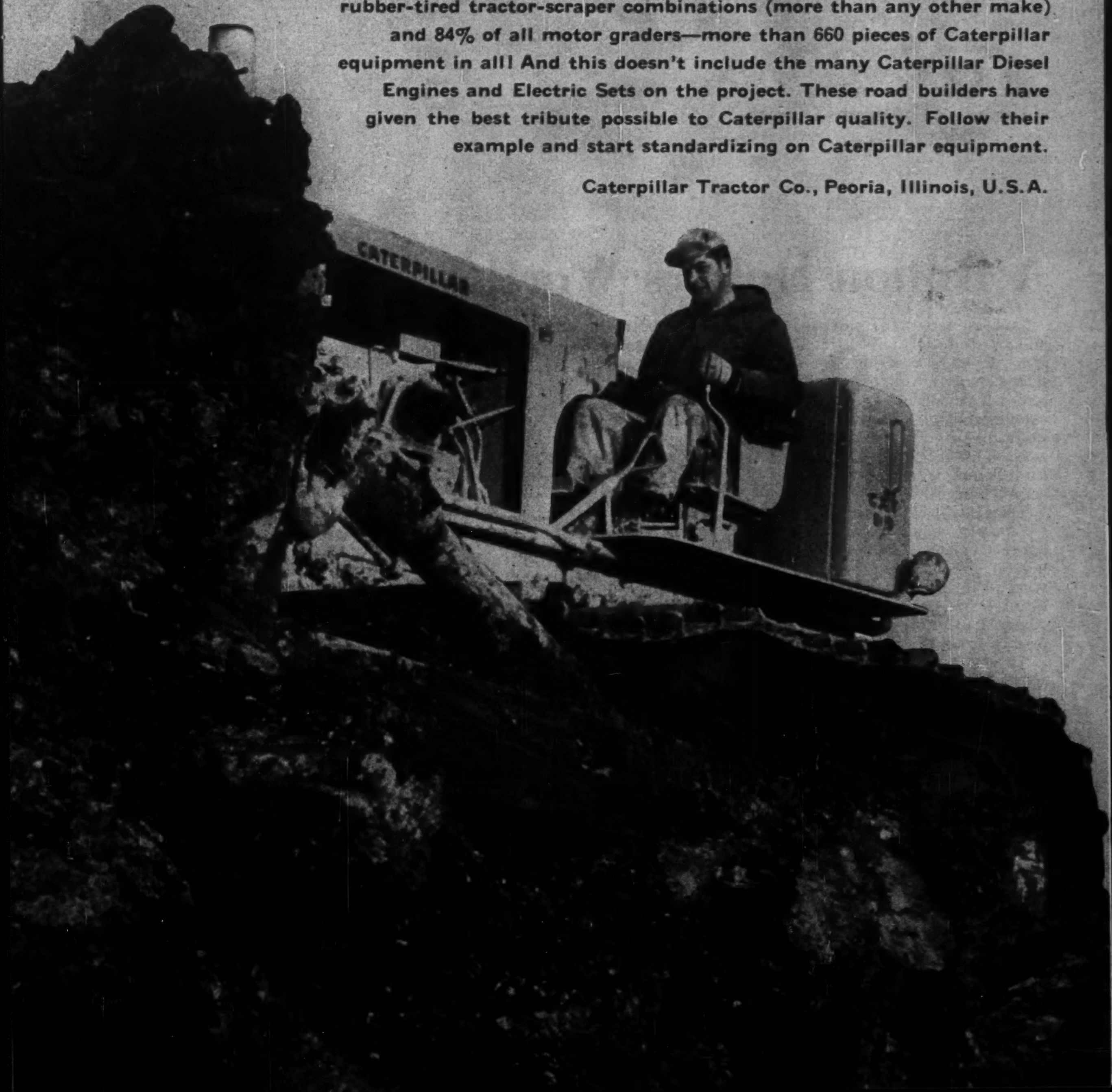


Massive Caterpillar D9 Tractor, owned by Western Contracting Corporation, digs in on the Illinois Toll Highway.

on $415 million road project

More Caterpillar-built equipment is at work on the Illinois Toll Highway than all similar machines of competitive make put together. Contractors agree, and have picked Caterpillar machines for this $415 million project. At production's peak last fall, the score was: 53% of all machines—68% of all track-type tractors, 39% of all rubber-tired tractor-scraper combinations (more than any other make) and 84% of all motor graders—more than 660 pieces of Caterpillar equipment in all! And this doesn't include the many Caterpillar Diesel Engines and Electric Sets on the project. These road builders have given the best tribute possible to Caterpillar quality. Follow their example and start standardizing on Caterpillar equipment.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.



After spending $179 million on storm drains to relieve local flooding Los Angeles County finds it still needs . . .

A Billion Dollars Worth of Storm Drains

Late last month, as a five-year $179 million storm drain construction program neared completion, the Los Angeles County Board of Supervisors received a detailed report that the area requires another $989 million worth of storm drains. Of the 1,894 separate projects listed, 740, or $515 million of construction, are placed in the urgently needed category.

The Los Angeles County Flood Control District, which prepared the report, has recommended expenditure of $217 million over the next five to seven years. The report was compiled from a listing by 57 cities and the county engineer. Part of the program is aimed at protecting areas still undeveloped.

To achieve uniform estimates, project costs were based on 1957 prices. In these terms, total cost of the 1,894 projects is $497 million, to which has been added assumed price increases of $303 million, contingencies of $40 million, engineering and overhead costs of $124 million and right-of-way costs of $24 million.

Minimum amount of time before dirt could move on the new program is one year. After determining what size program to go after, the Board of Supervisors would receive a detailed bond issue report from the Flood Control District and then conduct a bond referendum.

It is expected that the new plan would be operated much like the current $179 million program. Under construction since 1953, facilities under this program bridge the gap between local collecting systems (which are municipal responsibilities) and the primary river projects and floodways which are functions of the Corps of Engineers and the County Flood Control District (ENR May 17, 1956, p. 40). The main trunk drainage conduits of the program can be likened to the interceptors in a sanitary sewer system.

- **Central control**—Individual projects —140 of them in the current program —are designed by the cities or, in the case of unincorporated areas, by the county engineer's office. Design is checked, construction is supervised and the drains are operated by the Los Angeles County Flood Control District. Laws under which the district operates permit voter authorization of bond issues by simple majority, while cities require a two-thirds majority. This is one reason the program was assigned to the district.

Projects are spread throughout the populated area of the 4,071 sq mi county, with 43% in the City of Los Angeles. At the beginning of this year, more than 100 projects had been placed under contract and two-thirds of the $179 million had been spent or obligated.

The 140 projects range in size from a few thousand dollars to over $8 million, with an average of $1.25 million. To design the drains, many of the cities call in consultants who receive fees ranging from 3% to 6.25%.

Most of the smaller storm drains are reinforced concrete pipe. Alternate bids usually are taken for pipe or box sections where the equivalent pipe size is 84 in. or larger. There are a few open channels.

Early in the program, bidding was very competitive with an average of 12 bidders per project. Then as some of the larger contractors became obligated under the increased highway program, average number of bidders dropped to between five and six. Recently, though, average number of bids per project has jumped to 20.

There are near 50 different contractors on the first 100 jobs. Projects costing less than $300,000 are usually bid by sewer contractors, while the large jobs are generally taken by heavy construction firms.

Harold E. Hedger, chief engineer of the Flood Control District, has the job of administering the design checks and construction supervision of the vast Los Angeles program. The biggest project, and one that embodies noteworthy construction, that he is handling is an $8.6 million job.

(For more on this project, see page 30)

CATERPILLAR REPORTS ON THE ILLINOIS TOLL HIGHWAY. FIRST CHOICE OF THE MEN

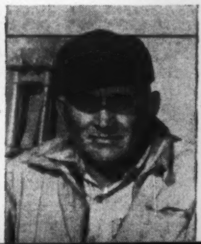
D9 (foreground) and DW21-No. 470 at work for S. J. Groves & Sons Co. on the Illinois Toll Highway.

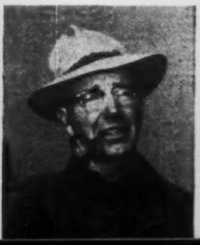
Contractors agree:

1 *"We looked at them all—then bought Caterpillar."* **2** *"Our DW15s have worked three seasons with no down time."* **3** *"...best service of any earth-movers we've ever had."* **4** *"D9s are powerhouses, maneuverable even in the rough stuff."* **5** *"Been around Caterpillar equipment for some 32 years—and I really like it."* **6** *"We like the capacity of the LOWBOWLS—they'll go on through."* **7** *"Our No. 12s do a good job of maintaining the hauls."*

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

1 Harold Thompson, Central Engineering Co.
2 Emil Strunk, Strunk Bros.
3 Al Ensminger, Orr Construction Co.
4 Glen Roberts of McCarthy, Mass, Dillon
5 Ted Sliger, CKG Associates
6 L. E. Myers, Arcole-Midwest Corp.
7 Claire Hawn, Western Contracting Corporation





Huge Storm Drain Goes 63 Feet Deep

A huge concrete box storm drain is being constructed in open cut excavations up to 63 ft deep in a busy residential and commercial area of Los Angeles. Although numerous special precautions are required for these extremely deep cuts, the work is proceeding on a production line basis that befits an $8.5 million job.

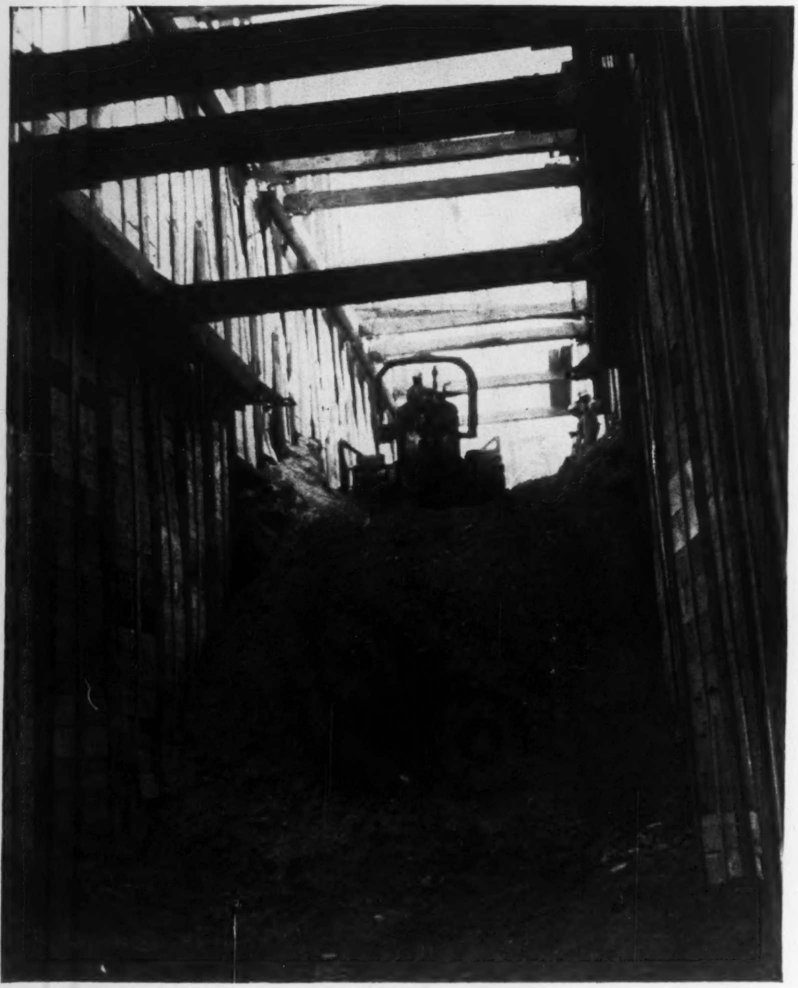
The project—called Project 84—comprises 20,000 ft of Slauson Avenue relief drain. It will drain a low-lying area that prior to World War II was to a great extent swamp land. An existing drain of 800 cfs capacity built during WPA days has proven inadequate to carry runoff during some of the heavy storms that occur during the rainy season. In supplementing this, the new line will be able to discharge 3,700 cfs to Ballona Creek at its terminus.

Aside from location of the conduit for minimum interference with existing utilities and properties, the toughest design problem was the flat grade involved. Invert of Ballona Creek at the point of discharge of Project 84 is El 54 and high water level is at El 62. The upper end of Project 84 is at only El 94. Thus, much of the grade is held to a minimum slope of 0.001 (1 ft in 1,000 ft).

The flat grade and large flow to be carried accounts for the size of the conduits. Three sizes are used—a 17x17 ft reinforced concrete box, a 14½x19 ft reinforced box, and a double reinforced box with each compartment being 11x14½ ft.

A complicating factor is the presence of organic peat in the soil throughout 70% of the construction area. This soil tends to rebound as overburden is removed. Thus, the design calls for the trench to be open a minimum time to insure stability of adjacent property and to control subsidence of the surrounding area. To counteract the rebound, an additional concrete slab is placed in the trench bottom if it appears to be necessary.

All of the construction is in open cut except for two concrete arch tunnel sections under a railroad line.



$8.6 MILLION LOS ANGELES STORM DRAIN PROJECT involves open cuts up to 63 ft deep in busy area. Here dozer pushes material to crane for removal by trucks.

• Piles in predrilled holes—First step in construction operations is drilling 15 in. dia holes for the H-piles that brace the excavation. The holes are drilled to the full depth of the pile which is 3 or 4 ft below bottom of the excavation. Drilling equipment is mounted on a truck crane and is powered by a 145 hp hydraulic motor at the drill head.

Inserted in the predrilled holes are 12 BP74 piles. They are driven to firm bearing by a double-acting steam hammer also mounted on a truck crane. Steam is furnished by a trailer-mounted boiler unit.

Both drilling and pile-driving equipment is mounted on rubber. This means that one drill and one driver can service the entire job even though there are three excavating and concreting spreads.

Pile spacing depends on soil conditions and is in the 3 to 6 ft range. Solid lagging is placed between adjacent piles. The 2x10 or 2x12 material is cut on the job. Reason that precutting is impractical is the tendency of the piling to drift making exact widths hard to predetermine.

As the trench is excavated, walers and struts are inserted to brace between the piles. Top struts are 12x12 timbers and bottom struts are 14-BP89 sections. Walers are all 12 and 14-BP sections with the top units being 74 lb sections and the bottom units being 89 lb sections. All struts are prestressed with a 100 ton jack to prevent movement of walls as interior material is excavated.

The piles are relatively expensive. For this reason, they are reused 10 or 11 times. To extract the piles, the contractor uses a 50 ton crawler crane working on a steam powered pile extractor through a 24 part line on a 55 ft high V frame. This combination can exert a 500 ton pull.

Walers, struts and lagging are placed as material is excavated from the trench. Excavation is handled by crawler cranes with clamshell buckets. Working with the cranes are bulldozers that push material from the trench bottom to where it can be easily handled by the cranes.

• Concreting—Since the contractor has to keep the trench open a minimum length of time, the concreting spread

CATERPILLAR REPORTS ON THE ILLINOIS TOLL HIGHWAY

First choice by count	CAT %	NEXT HIGHEST %	TOTAL MACHINES*
All machines	53	18	1,239
Track-type tractors	68	21	499
Wheel tractors-scrapers	39	30	426
Motor graders	84	6	140

*Based on tally of machines as of October 1, 1957

DW21, owned by McCarthy, Mass, Dillon, is pushloaded by a D9 on a section of the Illinois Toll Highway near Elgin. LOWBOWL design, fast cycle time make DW21-No. 470 rig a favorite on this project.

Caterpillar manufactures a full line of earthmoving equipment—track-type tractors, wheel-type tractors, scrapers, motor graders, Traxcavators.

Each machine is scientifically designed to perform its function profitably and dependably, 24 hours a day, *every day*. Each machine is manufactured from the finest materials under the most exacting conditions to meet standards of quality that are the best in the industry. Each machine is exhaustively tested under a variety of demanding conditions, perfected before being placed on the market. Each machine is backed by a world-wide dealer organization ready to give matchless service. Each machine has the safeguard of a complete line of genuine parts, built to the same rigid specifications as the machine itself, and always available instantly at your dealer.

There is a good way to find out what Caterpillar quality and performance can mean to you. Let your Caterpillar Dealer demonstrate the equipment that's best for your job—*on your job.*

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

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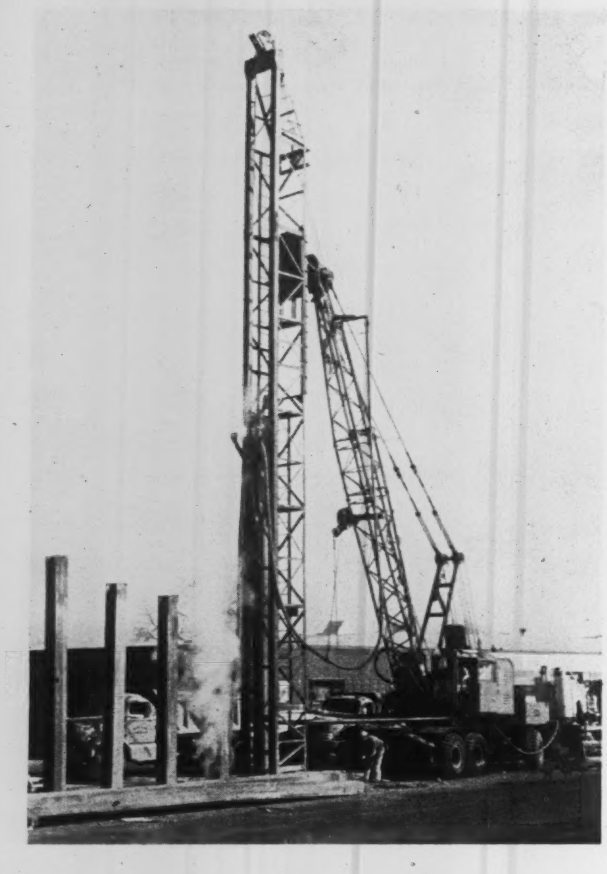
WORLD'S NO. 1 ROAD BUILDER

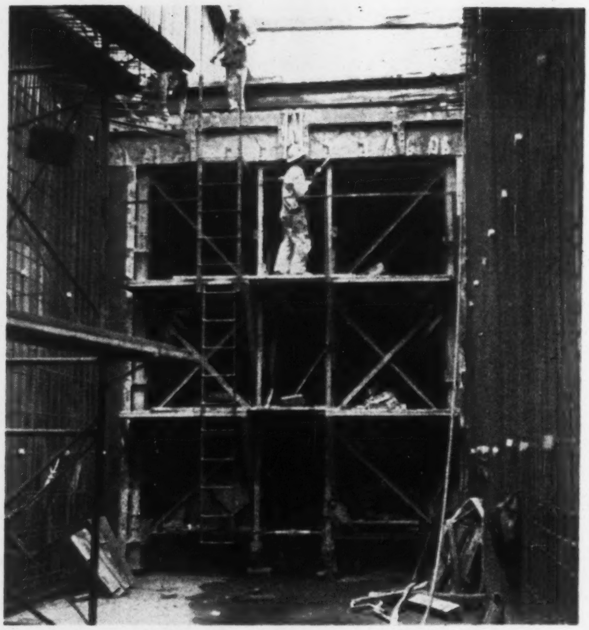
D6, owned by Central Engineering Co., 'dozes in muddy conditions on section of Illinois Toll Highway near Aurora.

DW20, owned by CKG Associates, is pushloaded by one of more than 50 D9s at work on the 187-mile road.

D8—No. 463 combination, owned by Arcole-Midwest Corp., needs its surefootedness in and out of swamp area.

No. 12, owned by S. J. Groves & Sons Co., grades an embankment. Earthmoving phase of road is near completion.





CONCRETE FORMS for box conduit are jacked inward for stripping, then rolled ahead for next pour.

SOLDIER PILES for trench bracing are driven in predrilled holes. Note truck-crane mounted pile hammer whose maneuverability proved boon.

follows closely on the excavating spread. First step in concreting is paving the invert. This is done 50 ft at a time with the invert paving generally being three 50 ft lengths ahead of the wall and roof concreting. The collapsible invert screed is slung by chain hoists to a needlebeam for moving ahead to a new position.

The trench sides serve as outside forms. Inside forms are steel-faced for wall and roof casting. They are made up in 50 ft sections and rest on the invert curb. The forms are in two parts so that they can be moved inward during the stripping process. They are wheel mounted with the assembly powered by a tugger hoist to move the forms ahead.

Concreting is on a two-day cycle. Forms are stripped and moved on the second day leaving a center strut in. This permits moving and setting the forms for placing concrete the following day. Meanwhile the reinforcing has been set in the walls.

Furnishing concrete to the project is a major problem. With three concreting spreads on the job, something like 20 truck mixers are in operation at all times. Biggest single placement involves 222 cu yd; others range from 140 cu yd upward. Concrete is fed through chutes and elephant trunks to the forms.

The trench is backfilled when all the concrete in the box section reaches 3,000 psi strength—in about 14 days. Backfilling is accomplished in 2 to 3 ft lifts.

Project 84 takes the discharge of three other conduits built under the current storm drain program. And in addition, it is fed by 112 street-corner catch basins.

At a contract price of $8,552,412.70, the Slauson Ave. project is the largest single project in the current Los Angeles storm drain program described on page 28.

Plans for the Slauson Ave. relief drain were prepared under the direction of Lyall A. Pardee, city engineer of Los Angeles. The design was prepared by Daniel, Mann, Johnston & Mendenhall under the direction of Irvan F. Mendenhall, with Walter Hodges as project designer. Construction is being supervised by the Los Angeles County Flood Control District.

The contractor, who began work in December, 1956, is a joint venture of Peter Kiewit Sons' Co. and Fred J. Early, Jr. Co. Ward W. White is project superintendent.

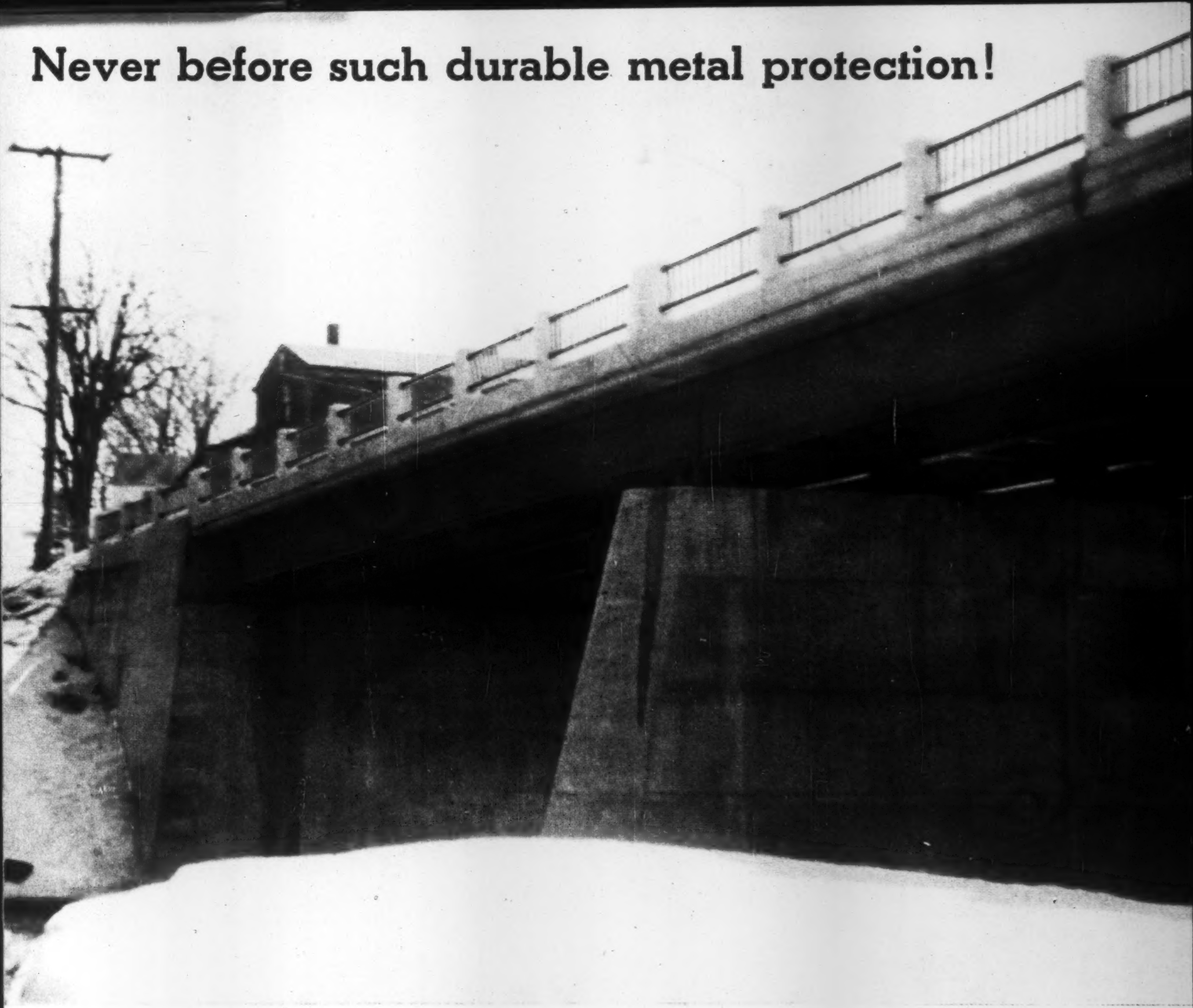
Central Agency Urged for Seattle Area Sewerage Job

A preliminary report on sewerage needs of the Seattle metropolitan area has recommended the creation of an area-wide authority as the only possible way of overcoming divided and overlapping municipal and local civil divisions and authorities.

The report, by the consulting firm of Brown & Caldwell, San Francisco, also advised city and county officials that the area would require two new major sewer systems and seven minor ones. "A program of the type to be recommended or any adequate program of sewerage for metropolitan Seattle can be financed, constructed, maintained and operated only through some type of central agency," the report said.

Considerable opposition has developed to the metropolitan plan from suburban districts who characterize it as cumbersome and not allowing sufficient representation.

Never before such durable metal protection!



Now...with M50 Defense in Depth paints... anti-corrosion beyond all former concepts

M50
Defense
in
Depth

Astounding new rust inhibiting ingredient *M50* basic lead silico chromate pigment* now permits paint manufacturers to supply anti-corrosive paint systems with...

...20% up to 300% greater rust inhibitor content: In *every* coat you can now have as much or *more* rust inhibition than you previously had in all coats combined of many other metal protective paint systems.

...full weather resistance in all coats: Now primers and intermediates as well as finish coats can be weather resistant. "Holidays" in one coat no longer need be focal points of corrosion.

...availability of a range of colors in every coat: Now you can have, if you want it, distinctive colors...or decorative colors...along with greater durability and protection.

See on the next pages what three typical *M50* Defense in Depth paints (a primer, an intermediate and a finish) provide buyers of specification metal protective paints for bridges and other steel structures.

*Registered trademark of

National Lead Company General Offices: 111 Broadway, New York 6, N. Y.

Here is proof . . . spread out for your consideration . . . that *M50** pigment Defense in Depth paint systems provide an entirely new, more effective means than ever before available, of protecting steel structures against corrosion. Three *M50* pigment paints are illustrated . . . (1) a finish, (2) an intermediate, (3) a primer.

Each paint is rust inhibitive. Each is weather resistant. Each can be obtained in a wide range of colors. Panels at right give details . . . left column, thickness of dry film and % content of rust-inhibitive ingredient in each type paint; middle column, photographic proof of the weather resistant properties of paints containing *M50* pigments; right column, some of the colors available in each type paint.

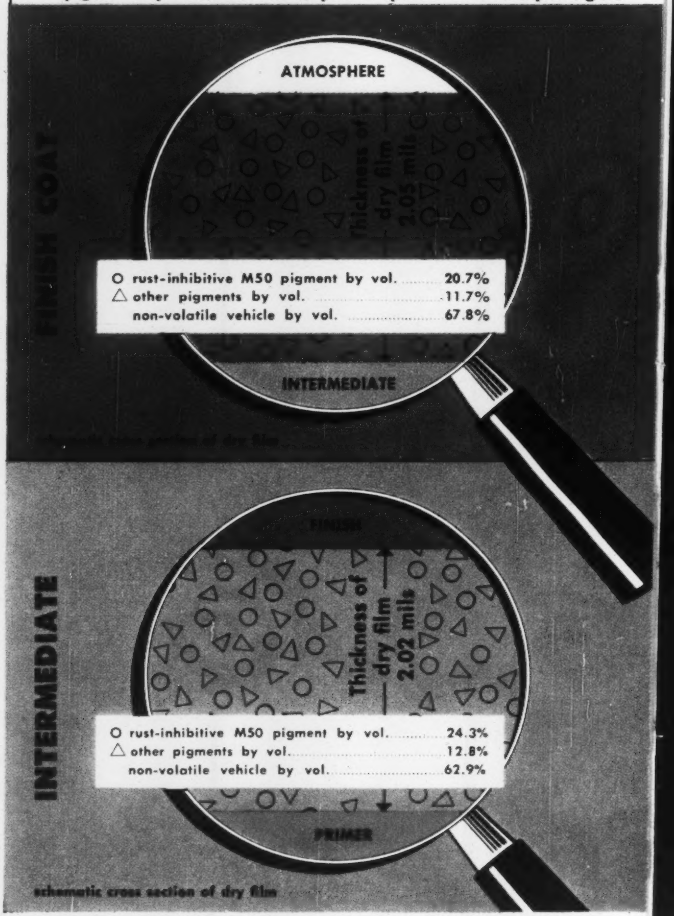
No other anti-corrosive paint system provides all 3 of these benefits in all paints of the system. Each coat of an *M50* pigment system provides these benefits in higher degree than all coats combined in many other systems. Brushability and coverage of *M50* pigment paints are excellent too.

If you are responsible for steel structure maintenance, you are invited to visit National Lead's Sayville, L. I. test station to examine for yourself exposure tests of *M50* pigment paints. National Lead is also prepared to: — (1) send you a 24-page descriptive brochure, "Defense in Depth" (mail coupon at right); (2) provide technical assistance in a test application of an *M50* paint system; (3) work with you in developing specifications for paints containing *M50* pigment.

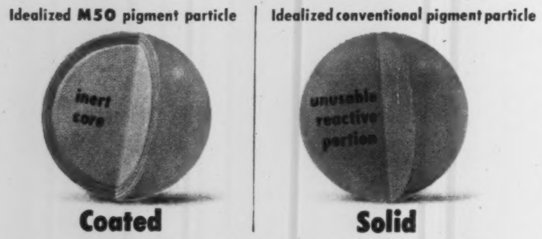
For M50 pigment paints themselves, contact your regular suppliers.

RUST INHIBITION
in every coat

(Whole system: thickness of dry film, 6.22 mils; rust-inhibitive M 50 pigment by vol., 1.71 mils; points spread at 600 sq. ft./gal.)


FINISH COAT
ATMOSPHERE
Thickness of dry film 2.05 mils
○ rust-inhibitive M50 pigment by vol. 20.7%
△ other pigments by vol. 11.7%
non-volatile vehicle by vol. 67.8%
INTERMEDIATE
schematic cross section of dry film
INTERMEDIATE
FINISH
Thickness of dry film 2.02 mils
○ rust-inhibitive M50 pigment by vol. 24.3%
△ other pigments by vol. 12.8%
non-volatile vehicle by vol. 62.9%
PRIMER
schematic cross section of dry film

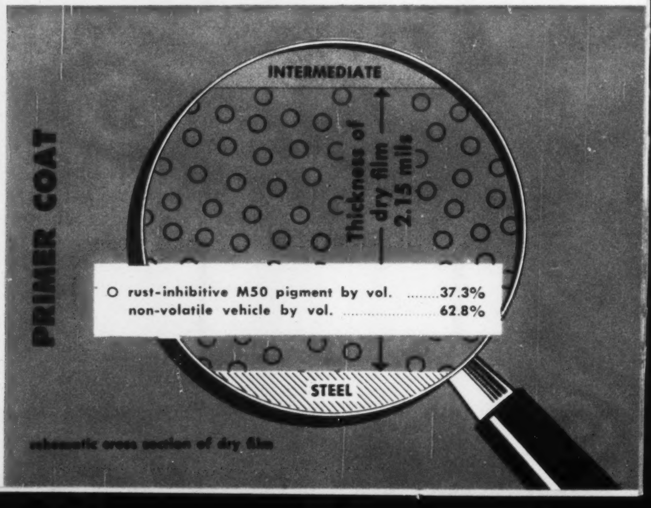
This is an M50 Defense Anti-Corrosive Paint


Idealized M50 pigment particle
inert core
Coated
Idealized conventional pigment particle
unusable reactive portion
Solid

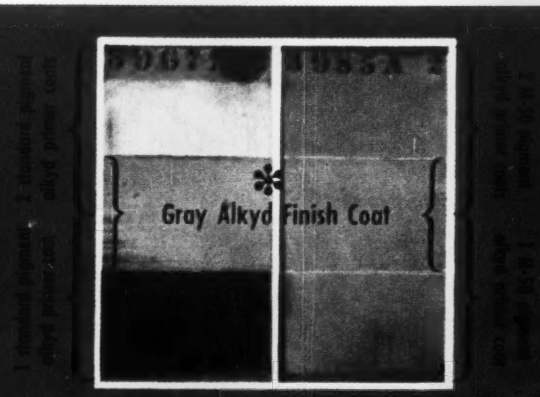
Reason why the M50 pigment particle makes possible superior performance specification paints at current market levels

As you can see, the business portion of the *M50* particle is at the surface . . . available for the chemical reactions that produce corrosion-preventing, durable paint films. What's more, this reactive portion is fused lead chromate . . . known for superior rust-inhibitive action and tint retention.

National Lead Company has made available to paint makers pertinent conclusions of the 20 years research that lies behind the *M50* pigment particle. With this data, your regular suppliers are equipped to provide you with superior-performance *M50* pigment Defense in Depth specification paints. Next time you purchase from them, ask for bids on *M50* pigment specifications.

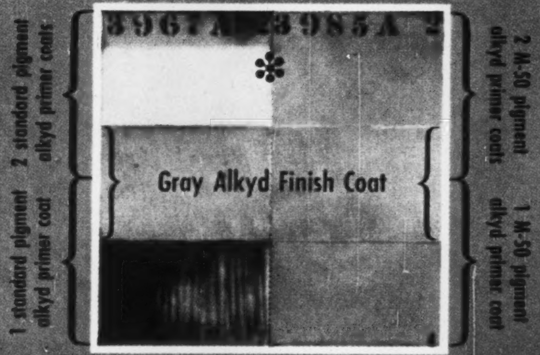

PRIMER COAT
INTERMEDIATE
Thickness of dry film 2.15 mils
○ rust-inhibitive M50 pigment by vol. 37.3%
non-volatile vehicle by vol. 62.8%
STEEL
schematic cross section of dry film

WEATHER RESISTANCE
in every coat



1 standard pigment alkyd primer coat
2 standard pigment alkyd primer coats
Gray Alkyd Finish Coat
2 M-50 pigment alkyd primer coats
1 M-50 pigment alkyd primer coat

Exposed* 8 yrs. 9 mos.

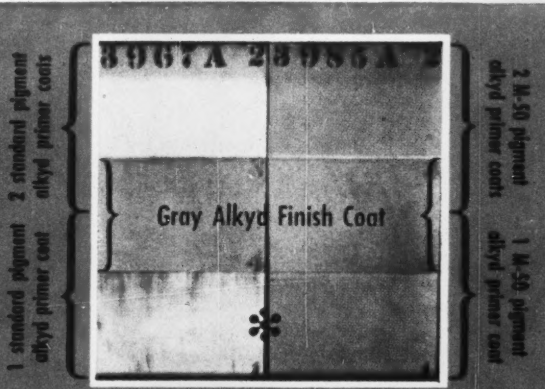


3967A 2 3985A 2
1 standard pigment alkyd primer coat
2 standard pigment alkyd primer coats
Gray Alkyd Finish Coat
2 M-50 pigment alkyd primer coats
1 M-50 pigment alkyd primer coat

Exposed* 7 yrs. 2 mos.

in Depth System

*Registered trademark of National Lead Company for basic lead silico chromate pigment



3967A 2 3985A 2
1 standard pigment alkyd primer coat
2 standard pigment alkyd primer coats
Gray Alkyd Finish Coat
2 M-50 pigment alkyd primer coats
1 M-50 pigment alkyd primer coat

Exposed* 4 yrs. 3 mos.

*Exposed 45°S. Each coat 1.5 mils dry film.

COLOR CHOICE
in every coat

DARK GREEN

GRAY

LIGHT GREEN

NAME YOUR OWN TINT

MAROON

GRAY

BUFF

NAME YOUR OWN TINT

M50
DEFENSE
IN
DEPTH

National Lead Company • 111 Broadway, New York 6, N. Y.

Gentlemen: Please send me your 24-page descriptive brochure on *M50* pigment, anti-corrosive paint systems, "Defense in Depth". Include the color card showing hues of the six typical paints you recommend for bridges and other steel highway structures.

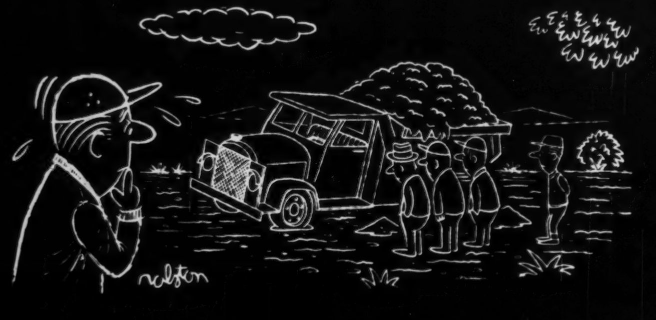
Name__________ Title__________
Firm or Dept.__________
Address__________
City__________ State__________

ORANGE

MAROON

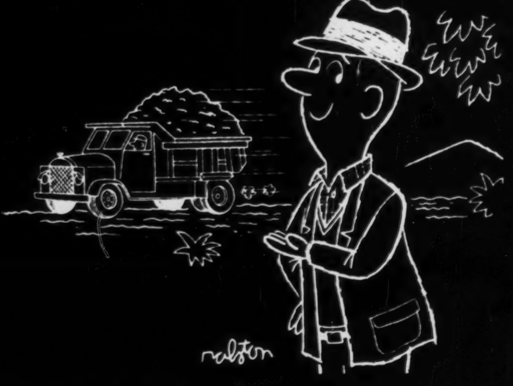
NAME YOUR OWN TINT

BILL'S IN A SIZZLE



an ordinary tire "blew" the job

but BOB'S ON SCHEDULE with



U.S. ROYAL TRUCK TIRES

contractor-proved against job delays!

Ask the boss contractors at Swift Dam, Trinity Dam, Hills Creek Reservoir or hundreds of other big projects. They've *proved* the best way to prevent costly tire delays from wrecking tight schedules is to *use U. S. Royals!*

There are 3 main reasons why. First: today's *U. S. Royal Tires themselves*—with exclusive, advanced features that deliver greater traction, strength and wear. Second: on-the-spot, know-your-stuff U. S. Royal *service*. Third: convenient, complete *retread facilities*.

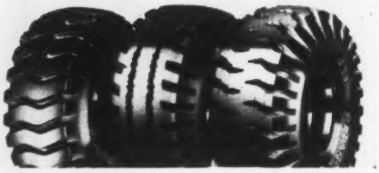
Be smart—let your U. S. Royal Dealer prove how *you* can cut job delays with these contractor-proved tires. Or be even smarter—*specify* "U. S. Royal" on the next equipment you buy!

U.S.Royal Tires

U.S. ROYAL CON-TRAK-TOR®—for rugged operations where utmost traction's required

U. S. ROYAL Super FLEETMASTER—for severe service on all your off-the-road trucks

U.S. ROYAL FLEETMASTER®—Dual Purpose, Nylon—top pull *and* mileage on *and* off road



U. S. ROYAL NYLON TIRES ARE TOUGHER, STRONGER, SAFER.

United States Rubber

Rockefeller Center, New York 20, N. Y.

In Canada: Dominion Rubber Co., Ltd.

ARMY BASE in California has heat in all buildings controlled from a central spot. Electronic system works on high-frequency impulses imposed on the existing wiring system. Large savings in heating costs are estimated to result with these controls.

CENTRAL CONTROL MECHANISM includes time clock that permits scheduling heating cycles weeks and months ahead. Workman removes reading bar that activates future changes.

RECEIVING PANEL responds to coded high-frequency impulses transmitted through existing electrical wiring. Thus, one signal will activate this mechanism whereas others won't.

Central Heat Control for Huge Army Base

Automatic central heating control has been provided at a large West Coast Army training base. The electronic system that operates over existing wiring may save as much as $50,000 a year in heating cost alone at Fort Ord, near Monterey, Calif.

On the sprawling Army base inhabited by 25,000 GIs it may take three men 10 days to shut off the heat in the 450 buildings without the electronic controls (according to an estimate made by the Ord project engineer).

The control requirements are complicated by the coastal location of Fort Ord that may result in cool summer days or warm winter days. The problem is further compounded by the constant shifting of post personnel. Like all training installations, Ord is faced with the problem of maintaining large zones of unoccupied buildings that have been temporarily evacuated by troops out on maneuvers.

The heating control system, called the IBM electronic central control system, was designed by IBM's Time Equipment Division and tailored to the particular requirements of Fort Ord through the joint efforts of IBM and Fort Ord engineers.

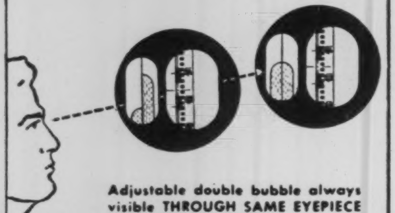
• **Heat scheduling possible**—As a result of the system and in keeping with the government's program of fuel conservation, heat at the post can be turned up automatically in barracks and offices on cool summer days or turned down during unseasonably warm winter periods.

SURVEYORS!

Save time

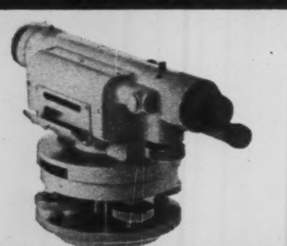
Save money

NEW LEVEL with



Adjustable double bubble always visible THROUGH SAME EYEPIECE as cross hairs and field.

DOUBLE BUBBLE



is "MISTAKE FREE"

- **No need to turn telescope during leveling up**
- **American type—erecting eyepiece, 4 leveling screws**
- **Unbelievably fast and accurate, yet simple-to-use. Economical!**

Mail this coupon for details

FENNEL

Instrument Corp. of America
45-22 Pearson St., Long Island City 1, N. Y.
Please send me Booklet A with information on Fennel . . .

☐ Double bubble ☐ Alidades
☐ Other levels ☐ Collimators
☐ Transits ☐ Stands
☐ Combinations ☐ Tripods
☐ Theodolites ☐ Repair of present instruments, (any make)

NAME..........
ADDRESS..........
....

. . . Automatic control of central heating

Only short notice is required to lower the temperature in an unoccupied zone. Yet, for such predictable events as holidays or daylight saving, changes can be scheduled a year in advance.

The electronic control system superimposes a frequency of 5,850 cycles per second on the existing 60 cycle wiring. Commands from a central control panel are transmitted to receiving units in individual units in individual buildings by means of the high-frequency impulses. The fact that existing wiring can be used represents a substantial saving.

The system includes a central operations panel, a transmitter and special coded receivers. Signals initiated at the central panel are passed by direct wire to frequency generators. These signals are relayed over existing building wiring to simple electronic receivers that have special decoding mechanisms capable of responding to on-off codes. An important economic feature of the receiver mechanism is that it is in actual operation only during the few seconds required to execute a command. Consequently, wear of parts is minimized.

• **Buildings are grouped**—The system actually does not work on individual buildings independently. Buildings are grouped into zones that include several buildings of like usage, such as a group of offices or barracks for a regimental training unit. Thus, all receiving units in each building in a particular zone would respond to the same on-off code as transmitted to it.

At Ord, the receiving units do not actually turn the heat off. For each one of the gas fired furnaces, there is a daytime setting and a night-time setting. The former usually is 72 F, and the latter usually 50 F—Ord engineers find it less expensive to reheat a building from a minimum of 50 F than to let it cool off to a lesser temperature. Thus, the signals merely change the regulated temperature from one level to another.

Occupants of the buildings could control the temperature levels if that is desirable. However, by means of a key switch at the building receiving unit, control at the building can be prevented. This may be necessary not only for administrative heat control reasons but also for safety reasons.

• **Control is centralized**—The central operations panel, located in the base power substation, controls the entire system. It is equipped with a master clock that is subject to automatic correction every hour. The clock schedules the commands sent out over the system. In event of power failure, it will continue to operate as a spring-driven clock for at least 12 hours.

Signals can be set automatically by means of small program machines plugged into the operations panel. Scheduling information is stored in these machines on small metal reading bars. These schedules can be changed by simply inserting new reading bars on the drum of the program machine. By this means, heating changes can be scheduled weeks and months in advance.

On the door of the control panel are circuit switches for manual override on one or all of the circuits. Thus, the heating condition of any one of the zones can be changed by flipping a switch.

The control panel door also contains equipment for automatically checking the operations of the panel. This consists of pilot circuit-status lights and a signal verifier that automatically senses the command signals for coding and signal strength. The lights change only when the verifier has established that the proper command signal has been transmitted and is of sufficient signal voltage to reach all terminal units.

The control system can be used for remote control of any electrical apparatus that is turned on or off with a switch. For example, at Fort Ord it is used to operate the air defense warning system in addition to the primary task of heat regulation. When additional signal coverage was found necessary at the base, 22 sirens were added to the original siren to be activated by the central control system. The warning system now easily covers the entire post as well as nearby living areas.

• **Good for all electrical equipment**—Thus, the system at Ord can be used for automatic control of any electrically operated equipment on the base, including lights, motors, generators, electric clothes driers and the like. An IBM representative stressing flexibility of the Fort Ord system has said, "Our experience gives us clear-cut evidence that programmed electronic controls can be tailored to meet any requirement of business, industry or government, from turning on pumps and generators to activating air conditioning and electric blankets."

Many of the advantages of the Ord system can not be evaluated in dollars and cents, since the system has just gone into complete operation. But the project engineer at Ord predicts that the $50,000 a year saving in heating alone could reasonably pay for the control system within a two-year period.

As a consequence of this installation, it appears highly probable that use of this type of control will become widespread.

DROTT 4-IN-1 SKID SHOVEL built lighter and stronger with USS "T-1" Steel. Can be used as a bulldozer, bull-clam shovel, clamshell or skid shovel. Can load trucks or freight cars.

USS "T-1" Steel reduces weight of 4-in-1 bucket by 35%, boosts payload by 1,200 pounds

"Our engineers specified USS 'T-1' heat treated alloy steel in the construction of our 4-in-1 skid shovel bucket because we could reduce the original weight by 35%. What's more, we could add one-half yard to the bucket capacity," says Mr. Edward Drott, President and Chief Engineer, Drott Manufacturing Corporation, Wausau, Wisconsin.

The entire Drott bucket is fabricated from USS "T-1"* Steel which has a minimum yield strength of 90,000 psi, nearly 3 times that of structural carbon steel. This strength helped to make the weight reduction possible . . . and the reduced weight on the front end of the tractor improved the balance and increased efficiency.

50% longer wear. Drott buckets made of "T-1" Steel have now been in rugged service about two years. Because of "T-1" Steel's high resistance to impact abrasion, the buckets will last 50% longer than those made of lower strength steel.

Strength after welding. USS "T-1" Steel was found to retain its strength after being welded or flame cut. This was an important factor in design.

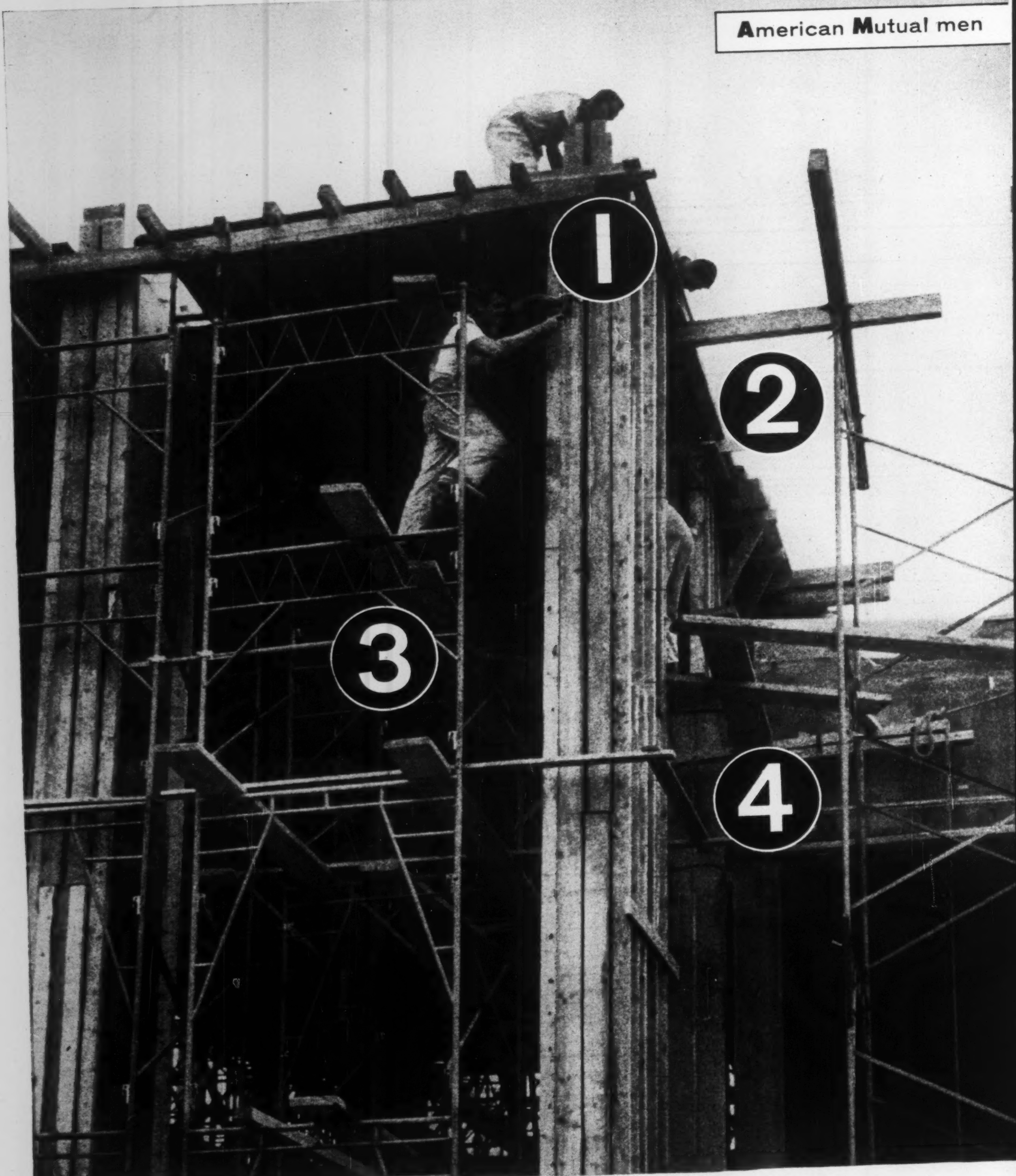
Sub-zero toughness. Even at 50° below zero, USS "T-1" Steel retains its high resistance to shocks and jolts in rugged work.

Build better with USS "T-1" Steel. No other steel possesses the remarkable combination of high yield strength, toughness and weldability found in "T-1" Steel. It may be the answer to your problems for many different types of mining and construction equipment. *Remember that we also make* USS COR-TEN*, USS TRI-TEN* *and* USS MAN-TEN* *high strength steels . . . standards for heavy-duty equipment.* United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

**Registered trademarks.*

USS United States Steel

American **M**utual men



American

can help you cut costs . . . save lives and time

What might happen to these men... one second from now!

Lives, limbs, dollars could be lost **IF...**

1. The formwork collapses
2. One of the men falls
3. A scaffold plank breaks
4. Falling material hits a man

On any job, friendly AM men can help you cut costly accidents . . . give you expert insurance counsel!

Erecting formwork—as the men in the photograph are doing—is a routine construction job. But any successful contractor knows an accident on this kind of job could take away lives—and profits, too.

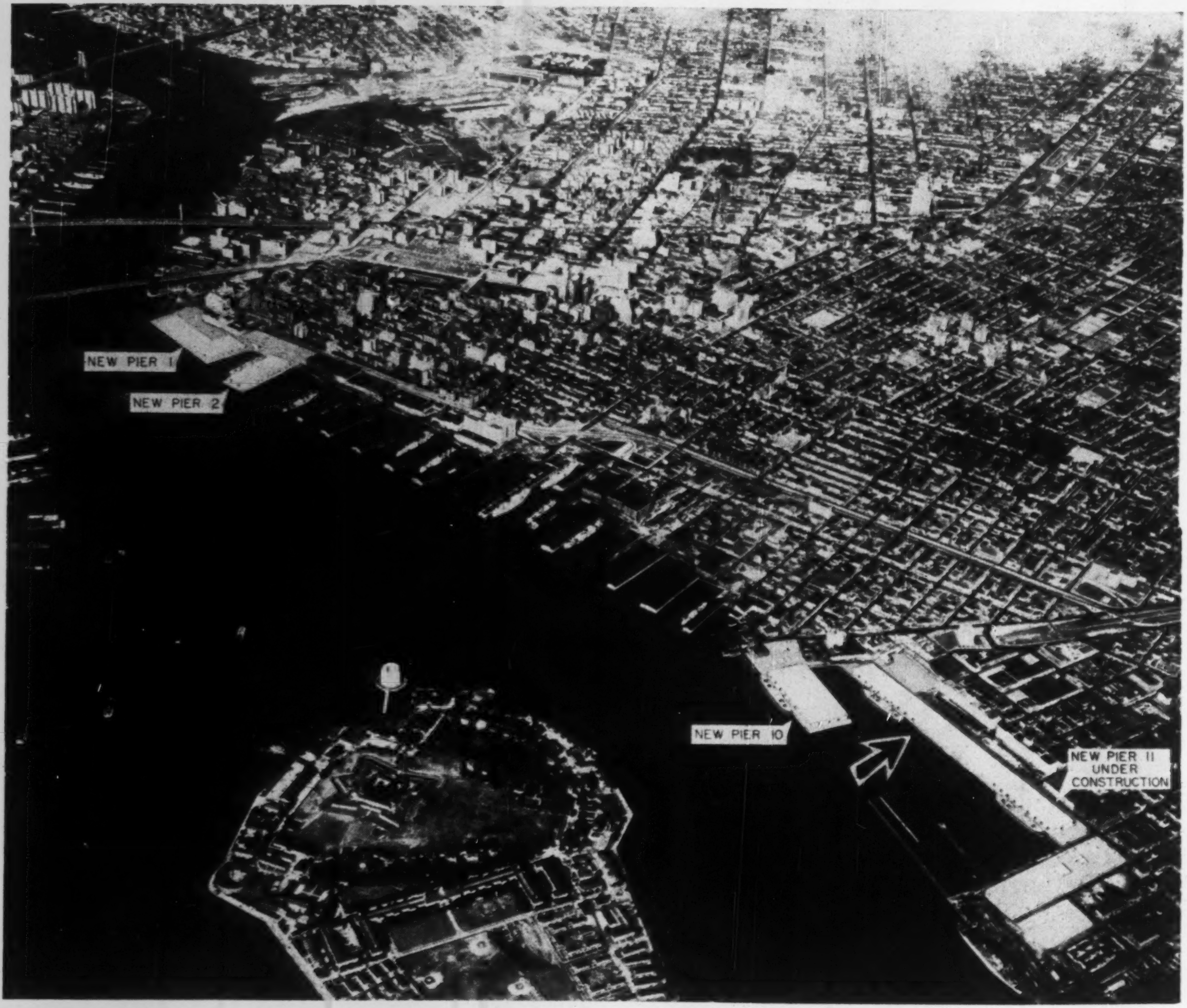
On this job as on any project, AM men can help the contractor set up a safety plan to prevent costly accidents—as well as design an insurance program to cover every hazard at the lowest possible cost. Working with the contractor and his job superintendent, the AM Safety Engineer helps find the way to get the job done with the greatest safety, speed, and profit. His down-to-earth safety suggestions help guard workers against hazards . . . lower construction and insurance costs. Should a worker be injured, other AM men handle the claim promptly and fairly . . . and restore the man to work as quickly as possible.

By teaming up with AM men, contractors in every field have saved lives and limbs : : : earned substantial savings through lowered insurance costs plus dividends . . . gained a reputation for reliability . . . all keys to becoming the successful bidder. Good reasons to call in your *friendly* AM *man* before you make your next bid. American Mutual Liability Insurance Company, Dept. EN 2, 142 Berkeley Street, Boston 16, Massachusetts.

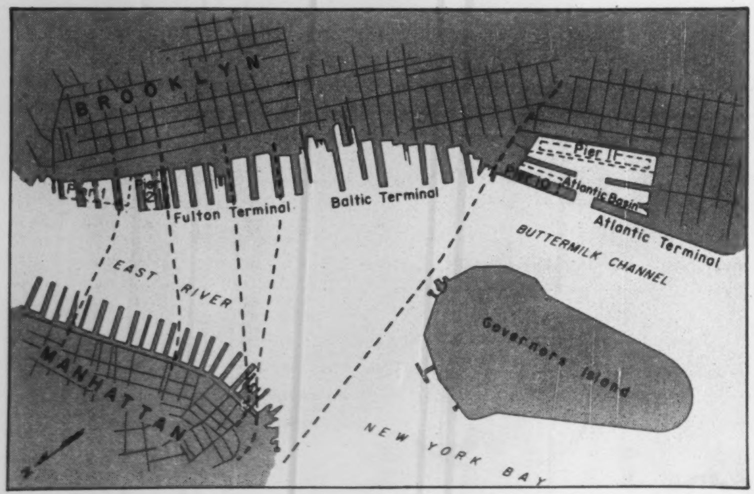
Leading writers of Workmen's Compensation, all forms of Liability, Crime and Accident and Health Insurance

Your friendly AM man can advise you on all your liability insurance needs

AMerican Mutual LIABILITY INSURANCE COMPANY


NEW PIER 1
NEW PIER 2
NEW PIER 10
NEW PIER 11 UNDER CONSTRUCTION

ATLANTIC BASIN (arrow) becomes roomier and allows more space for maneuvering ships in swift current of channel. No sharp turns will be required.

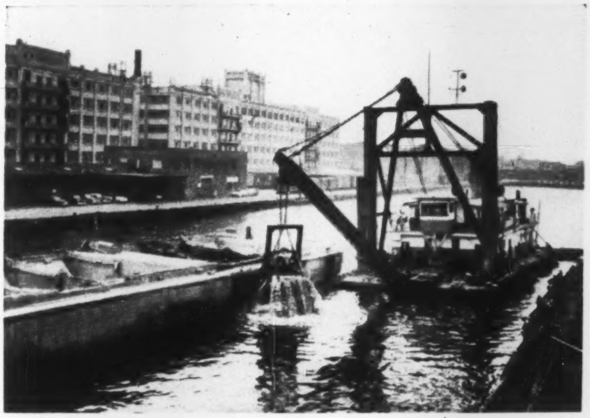

BROOKLYN
Pier 1
Pier 2
Fulton Terminal
Baltic Terminal
Pier 11
Pier 10
Atlantic Basin
Atlantic Terminal
BUTTERMILK CHANNEL
EAST RIVER
Governors Island
MANHATTAN
NEW YORK BAY
N

LOCATION PLAN indicates general stretch of waterfront under reconstruction. Fewer, but larger, piers and wharves are the keynotes of design.

Know-How

When you are dealing with hard-headed businessmen and tough-skinned union bosses, to whom "the docks" mean money and jobs, you call on top engineering and construction talent to keep the work moving. And the bi-state Port of New York Authority, whose chief engineer, John M. Kyle, is an old hand at pier construction, had just the right engineers and contractors on tap when it was ready to go to work on New York's Brooklyn waterfront.

The Brooklyn project is part of a $150 million marine terminal development being carried out by the bi-state agency in the New York-New Jersey harbor under its Director of Marine Terminals, A. Lyle King. Involved in the work are solid fill wharves, a finger pier on composite pile foundations, special pipe piles spanning a subway



DREDGING harbor prior to commencing fill operations was necessary to minimize fill settlement, assuring solid foundation.

RUBBLE on shore side of Pier 1 partly fills the new area. Sand fill will extend about to barge (arrow), where sheet piling will provide the dockside of the wharf.

Spurs Waterfront Project

tunnel and an ingenious method of anchoring sheetpile tie-rods.

According to Guy F. Tozzoli, manager of the planning division of the Port Authority's Marine Terminals Department, the new Brooklyn docks will represent one of the "boldest advances in designing dock facilities to be seen in over a hundred years." It is a revolution in design alone in allowing ample parking, loading and storage space for the trucks that handle 80% of the freight traffic at these piers.

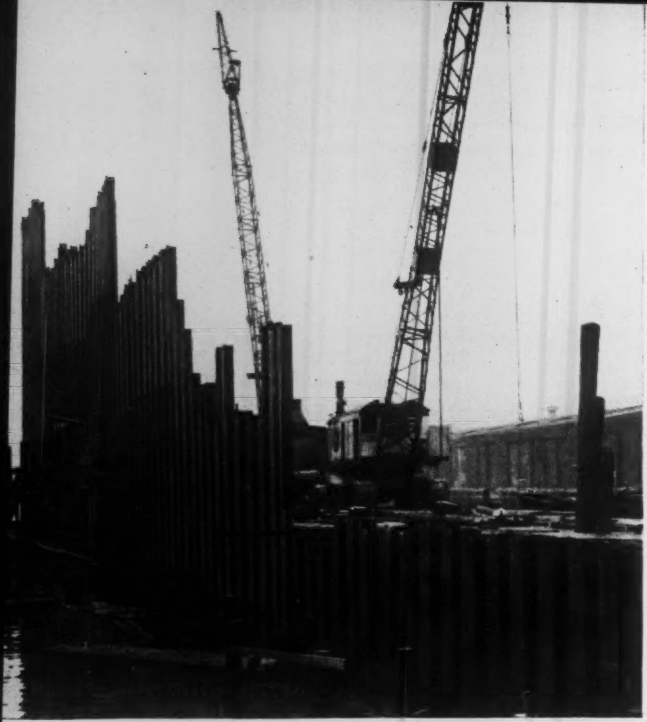
At a cost of $85 million, PNYA is developing two miles of waterfront in a program that will see construction of 10 new piers, with 50 acres of upland parking and loading area. These piers will replace 25 antiquated ones that originally occupied the area (ENR June 6, 1957 p. 66).

The new facilities will be able to handle not only the shipping capacity of the old docks, but more—thanks to design that permits faster turn-around for the ships using the new facilities. Only 25 efficient vessel berths are planned, to replace the 44 inadequate berths originally available.

To be completed by 1963, the new marine area will furnish some 2 million sq ft of enclosed pier area—about one-third more than was at hand before. Easier ship docking and departure will be assured by increasing the average slip distance to 300 ft—100 ft more clearance than at the old docks.

The planning division of the Port Authority has carefully scheduled construction and demolition operations so that at no one time will dock service be completely disrupted along this busy

ROCK DIKE is placed by clamshell and bottom-dump barges to retain fill and prevent backwash of silt from river.



SHEETPILES are driven in place when fill is nearly completed. Tie-rods anchor to another wall behind to support the outer face.

FILLING OPERATION continues as Pier 11 nears completion. Back wall (arrow) takes tie-rods to anchor dockside beyond.

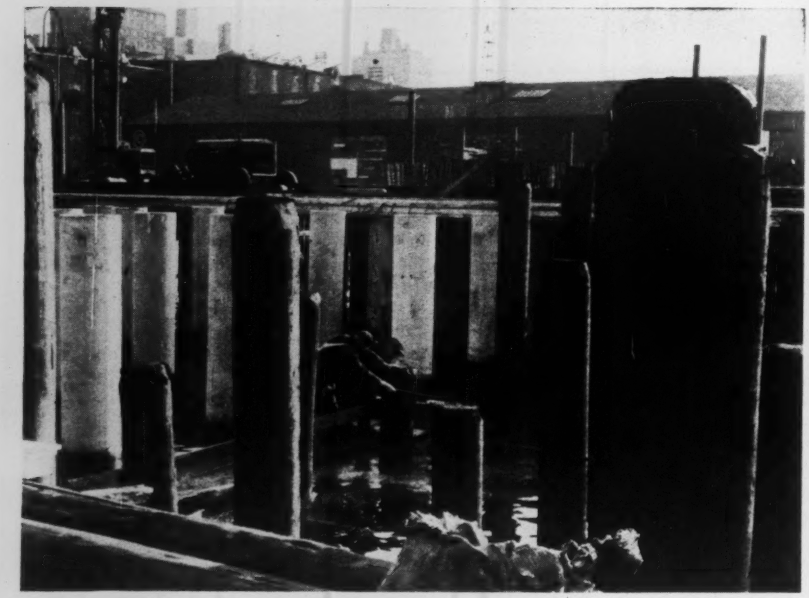
stretch of the nation's biggest seaport

• **Scope of work**—The program got under way in 1956 with the construction of $8 million Pier 11, a three-berth quay in the Atlantic Basin. Scheduled for completion by April 1, 1958, this pier will provide 2,100 ft of marginal berthing space and will be New York City's longest single waterfront facility.

Pier 11 will have a 25 ft wide apron with a single-story cargo building, 1,800 ft x 150 ft. The landside will have a 20-ft-wide truck-loading platform that will handle up to 144 trucks at one time. Five acres of truck-loading space, in addition to a two-acre upland area, will serve the rear platform.

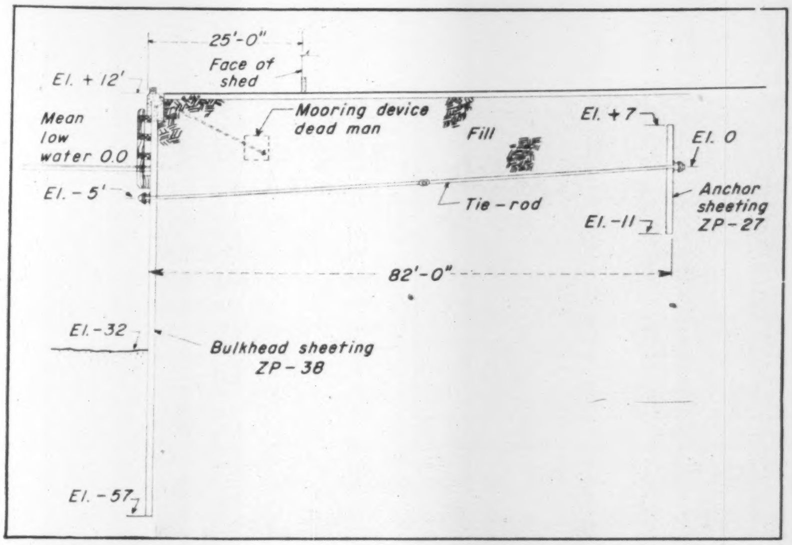
Estimated to cost $5 million, a new finger pier (Pier 2) will provide two berths and 210,000 sq ft of area. This pier will be furnished with a loading platform on its shore side, capable of accommodating 17 trucks, and will have a 133,000 sq ft paved upland area for cargo handling and truck servicing.

Construction of Pier 2 requires the removal of existing Piers 8, 9, 9½ and 10, as well as the relocation of 1,000 ft of railway trackage on shore. The demolition and construction began in December, 1956, with completion scheduled for late 1958.



WOOD PILES are trimmed off about 3 ft. above mean low water. Concrete pipe fits over top of the wood, and is filled with concrete to make up a composite pile.

DECKING FORMS are laid on beams supported by concrete columns. Columns



TIE-ROD CONNECTION between seawall and anchor sheeting uses 3⅝ in. dia upset end steel rods with turnbuckle connections to anchor wall to sheeting.

A third pier now under construction (Pier 1) is a three-berth, L-shaped structure located just south of the Brooklyn Bridge at the northern end of the Port Authority property. To cost an estimated $7.5 million, Pier 1 will have 30-ft-wide aprons, 256,000 sq ft of shed space, a 20-ft-wide loading platform to handle 80 trucks, and a 360,000 sq ft paved upland area.

Construction of this new facility, which began in April, 1957, requires demolition of existing Piers 3, 4 and 5. Existing Pier 6, which is structurally sound, is being raised to the new level and will be used as a part of the new structure. Some 1,200 ft of trackage also will be moved as part of this project, with operation scheduled for April, 1959.

The fourth pier now being built is Pier 10. Begun in September, 1957, this finger pier will be a shortened and widened version of existing Pier 33, located across the mouth of Atlantic Basin. It will be 702 x 316 ft in size, and will have a total of 180,000 sq ft of covered space. In conjunction, there will be 97,000 sq ft of paved upland. This pier is to be ready in July, 1959.

Shortening this pier will add 300 ft of width to the entrance of the basin, to ease the navigation of the 90 deg turn from Buttermilk Channel—always difficult for ships because of strong tidal currents. The new entrance will have a width of 600 ft.

Finally, to avoid damage by high water caused by hurricanes, all the piers are being raised from the present 9½ ft to 12 ft above mean low water.

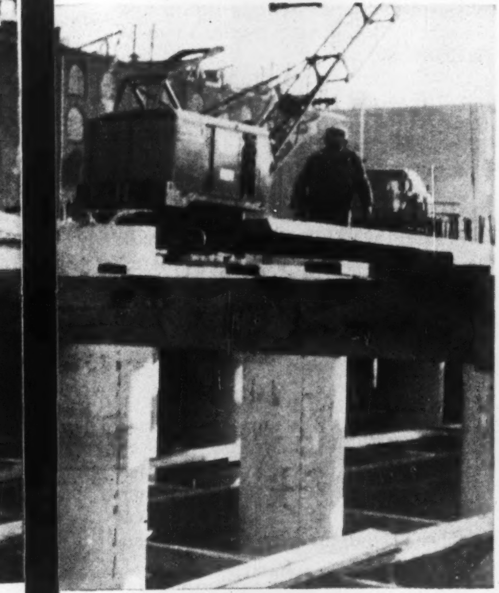
• Solid fill construction—In two of the piers Pier 1 and Pier 11, solid fill construction with steel sheetpiling at the waterside is being used. Fill is being deposited both from shore and from bottom-dump barges and sand hoppers in the harbor, after initial dredging of about 5 ft of river silt to bring the fill area to a uniform 30 ft depth.

On the shore side, good, easily compacted rubble, free of organic materials and plaster, is used. Demolition contractors throughout the city are finding here an easy outlet for their rubble, and are glad to help with the fill.

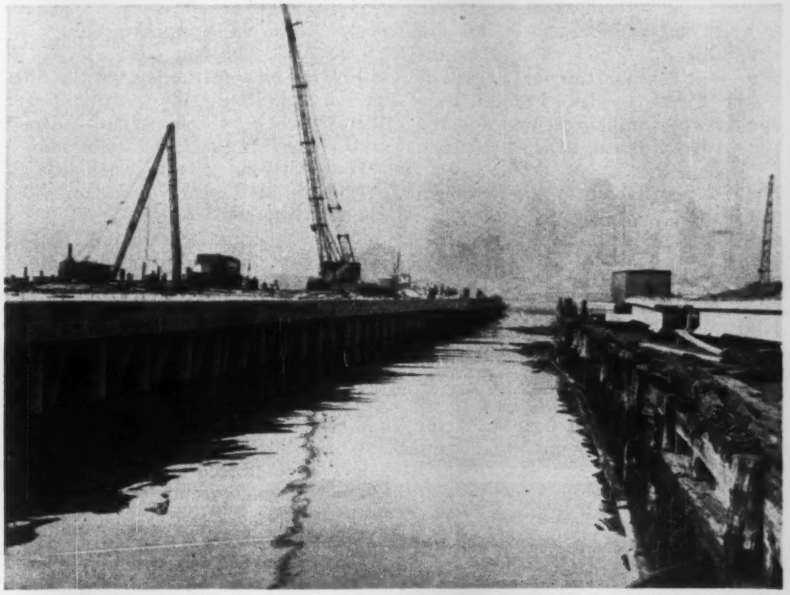
However, most of the fill, particularly the offshore area, must be of a higher quality material. For the most part, a hopper dredge brings in sand from sandbars at sea and pumps it into the fill area.

After the bottom dredging and prior to discharging the sand fill, a rock dike is placed, rising to one ft above the MLW line, in a narrow band marking the edge of Piers 1 and 11. Precise location of the dike is important, since sheet piling has to be driven just inside and outside the rock area. This dike retains the sand as it is jetted into place and prevents river silt from washing back into the dredged area.

(*Continued on page 46*)

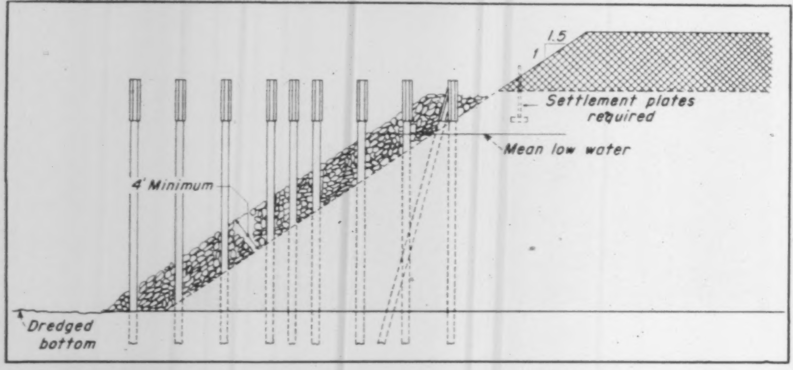


are bonded into 12½ in. concrete flat-slab decking by a monolithic pour.



COMPLETED DECKING tops the composite pile system at Pier 2 on north side, while work continues on opposite side of pier. Old pier makes a working platform.

. . . Brooklyn waterfront's new look



COMPOSITE PILING extends along surface of sloping fill at Pier 10. Note riprapped surface and retaining wall to prevent slippage. Decking spans fill and piling.

Bottom-dump barges, assisted by a clam shell, place the rock in proper position.

In all, about 1 million cu yd of fill is needed for these two piers.

• Driving sheets—The dike completed, filling operations continue until it is practical to drive the steel sheetpiling to form a permanent retaining wall for the fill. Conventional barge-mounted pile drivers do this job.

Yet, there's a difference: A second sheetpile wall is driven to serve as a "deadman" anchor for the top of the seawall. At both Piers 1 and 11, specially cast 3⅝ in. dia tie-rods, with upset ends, stretch between the two walls at 9 ft intervals. They extend laterally from an underwater position at the outer wall to the top of the inshore anchor wall.

At Pier 1, two rods of 42 ft length are joined by a turnbuckle to bridge the 82 ft distance between inner and outer walls. At Pier 11, the rod lengths are 57 ft, to span a distance of 112 ft between the two walls. In both locations the same principles hold and the same methods go into their installation.

• Tie-rod installation — The problem was to insert and fasten the end of the tie-rod through the outer wall—5 ft under low water—without having to use a diver.

Port Authority engineers and the contractor, Felhaber Pile Co. came up with an idea: Prior to driving the sections of the outer wall sheetpiling, at points where tie-rods must go, the sheets were cut in two sections at the insert point, with cut-outs to accommodate the rod.

The cut sheets then were driven into position without earth loadings. Then the top section was lifted out, the rod dropped into place, with its outer bearing nut and plates already attached. With the rods thus placed (in pairs), the upper half of the sheet was driven back into place and the tie-rod cinched up with the turnbuckle. So went the operation: Pairs of piles were raised, fitted with tie-rods and I-beam braces, then driven back into position and the tie-rods tightened.

It was a fast, smooth operation.

• Pier 1 complexities — While the greater part of Pier 1 is made up of fill, some composite piles must be driven at the southern edge extending from existing Pier 6. And the deck of this pier, whose piles were found to be sound and solid, is being raised with earth fill to bring it up to the 12 ft elevation.

Where the fill joins the existing pile pier, wood sheeting is being used as a retaining wall between the pier and the fill area.

In general, asphalt surface is placed over the filled area of Pier 1; concrete decking over the composite piles.

• Tapered fill construction—At the inlet to Atlantic Basin, the existing finger Pier 33 is being shortened and widened to become Pier 10. Fill is being moved as necessary and the channel dredged at the end of the pier, to open a wider channel into the basin.

In this type of construction the fill tapers off to the bottom of the channel as the pier edges are approached. Riprap then protects the sloping surface. Further, an internal cutoff wall is placed along the top of the slope to prevent slippage.

Composite wood and concrete piles are driven in the sloping area between the top of the fill and its deep-water edge. A reinforced concrete deck rests on the fill and extends over the piling support.

• Composite pile construction—Pier 2 rests entirely on piles, most of which are composite wood and concrete—the wood piling protected by concrete below the water line, and cast-in-place concrete forming the upper portion.

When the wood "sticks" are driven and cut off (about 8 ft above the mean low water line), a network of wood lagging is placed underwater, to support the 24 in. dia concrete pipe that is slipped over each pile stub. An asbestos ring mat, placed under the concrete pipe, retains the concrete with which the pipe is filled. Reinforcing bars extend from the top of the concrete in the pipe to make the bond with the flat-slab deck.

• Concrete decking — The reinforced concrete deck, of the same specifications at all piers—12½ in. thick is standard—is being placed differently in two separate contracts.

One of the contractors, Charles Vachris, Inc., thinks that removable plywood forms offer the best solution. These forms, supported from framework resting upon the lagging, are stripped and reused.

Another contractor, Horn Construction Co., doing similar decking at Pier 1, believes that non-removable, cast-in-place corrugated steel forms are best. While the steel itself is more expensive, its use eliminates costs of removal.

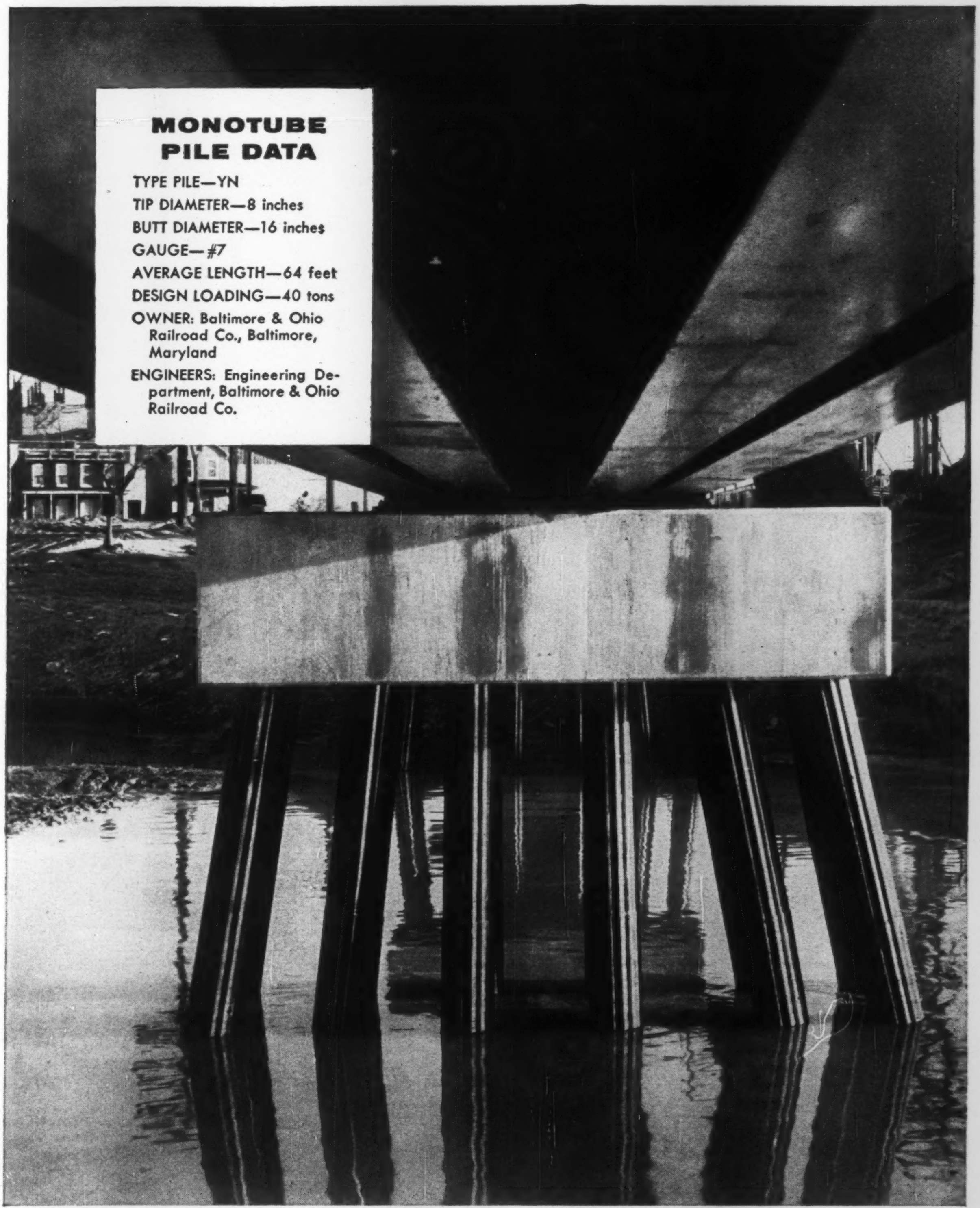
• Straddling a tunnel—At Pier 2, along a band where two subway tubes pass directly under the pier, conventional wood piles could not be driven. Instead, the engineers called for three rows of 12 in. dia-open-ended pipe, 25 ft apart, to be driven to bedrock, straddling the two subway tunnels. In this case the piling is spaced too far apart to permit flat-slab design of the concrete deck. So, 25 ft long prestressed concrete girders span between them at 14 ft intervals.

Locating the subway tubes precisely posed a special problem. At first it seemed the best way might be to have a survey crew locate the tubes, center lines, then extend these lines on the surface across the water. But this meant some disruption of subway traffic, and it would be difficult to mark the extended line accurately over water.

Herb Frank, the Port Authority's resident engineer, came up with the idea of locating the tunnel crests by "feel" with a jet-pipe. This method proved fast and accurate.

At the approximate point where a pile was to be driven, the jet-pipe was lowered into the muck and jockeyed into position at the high point of each tube. Then by measurement to each side, the line for the pipe piles was established and the pile driven to bedrock.

Since the river bottom surrounding the tunnel was semi-liquid, closed end pipe was driven with a jet-pipe assisting.



MONOTUBE PILE DATA

TYPE PILE—YN
TIP DIAMETER—8 inches
BUTT DIAMETER—16 inches
GAUGE—#7
AVERAGE LENGTH—64 feet
DESIGN LOADING—40 tons
OWNER: Baltimore & Ohio Railroad Co., Baltimore, Maryland
ENGINEERS: Engineering Department, Baltimore & Ohio Railroad Co.

DESIGN ECONOMY plus CONFIDENCE with Monotube piles . . . a sizable saving over conventional pier design, yet complete conformity with railroad specifications. That's the record of these Monotube piles used by the Baltimore & Ohio Railroad at Westport, Maryland.

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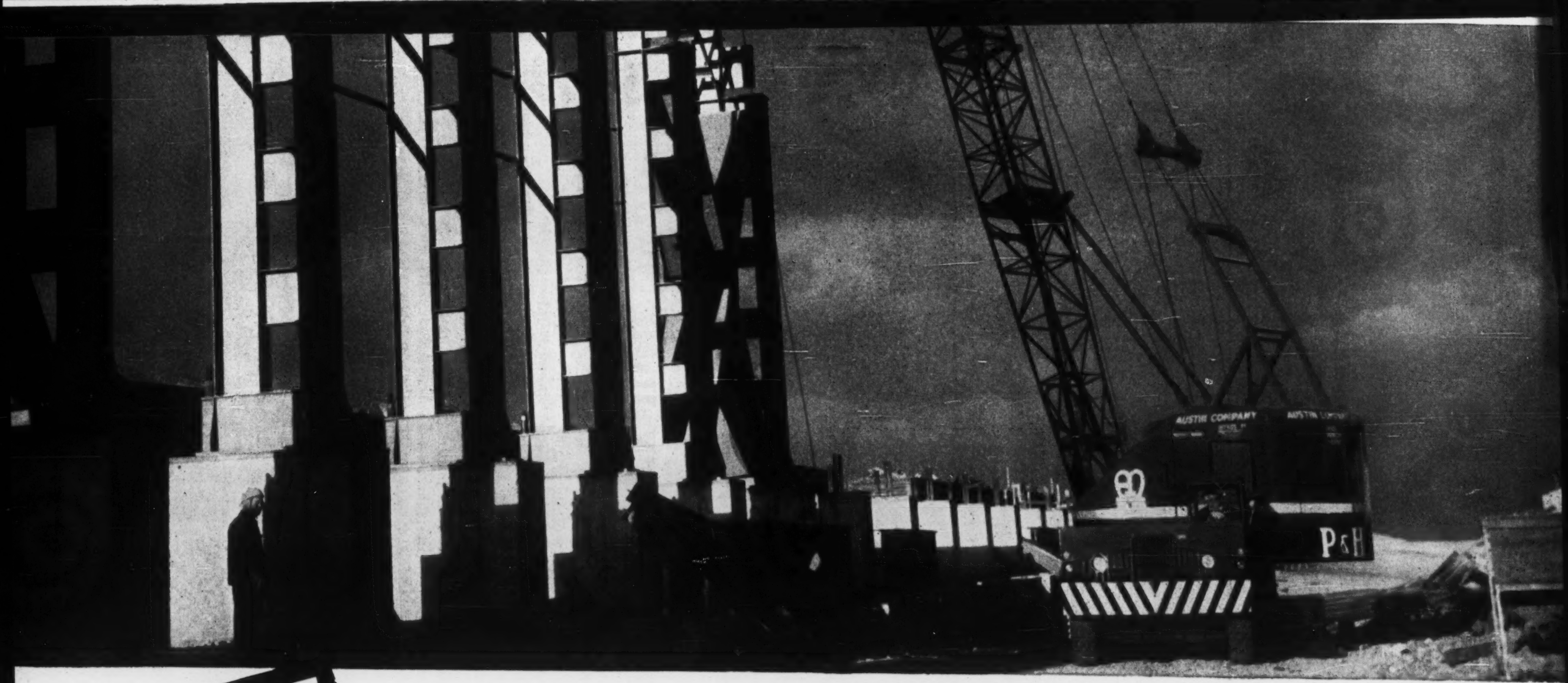
UNION METAL

Monotube Foundation Piles



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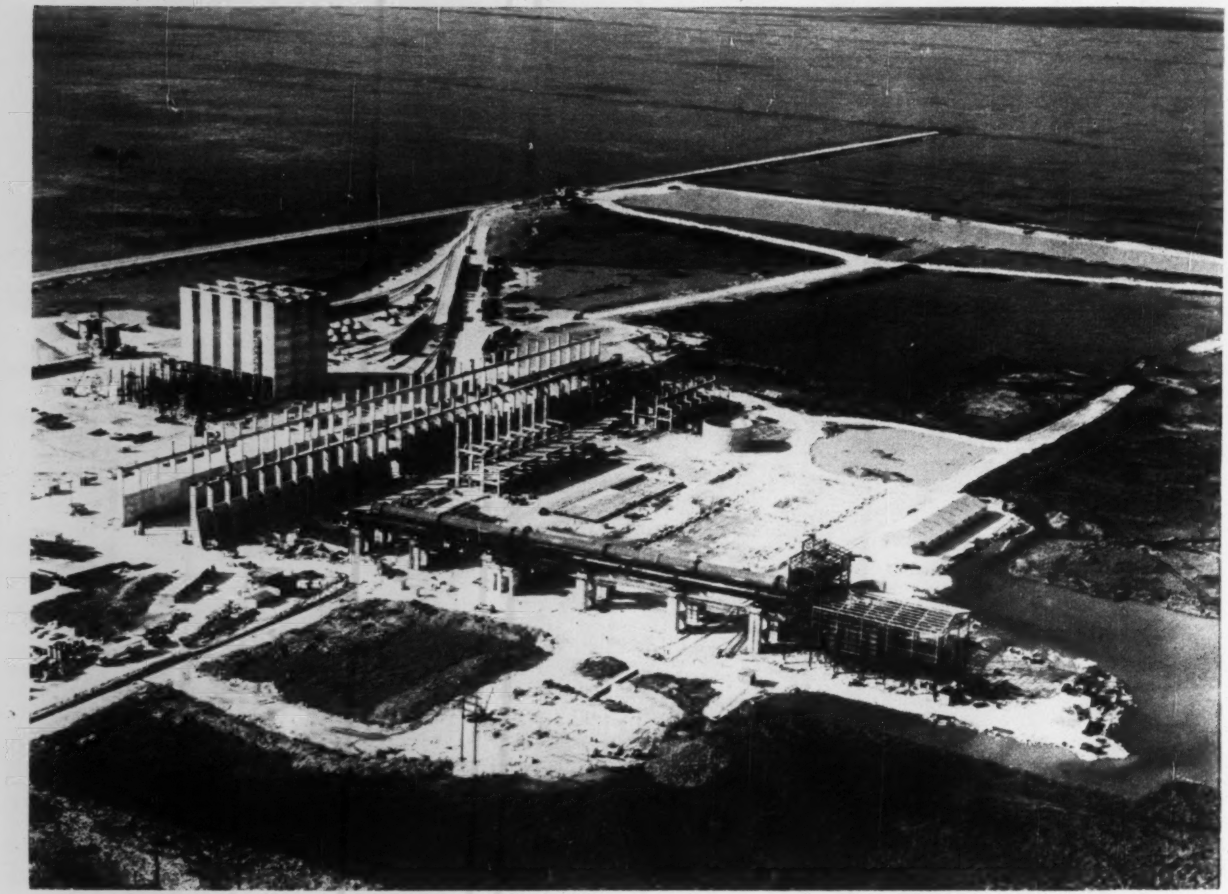


Ground-water level coincided with natural grade, but it didn't prevent . . .

Building a Cement Factory in a Swamp

Despite one of the wettest wet seasons last year that the area ever experienced, construction of a $25 million portland cement plant a few miles west of Miami, Fla., kept right on schedule.

Not even a dry season would have been very dry at this particular site. Located on the fringes of the south Florida everglades, its natural grade stands only 1½ ft above minimum ground-water level, and lies 1½ ft below maximum ground water.

"It was just like building a foundation in the middle of a lake," says Miami contractor Frank J. Rooney, who is building the plant as a joint venture with Walsh Construction Co., New York City, and Perini Bros., Inc., Framingham, Mass., for the Lehigh Portland Cement Co.

• Why build in a swamp?—For the owner, the attractiveness of the site is the underlying rock, a high-grade coral oolite, which will be used in the production of cement. Lehigh is reserving about 2,400 acres of the 3,500 acre site for quarrying and will excavate five to six acres of the limestone each year to a depth of 40 ft, using a dragline. Annual production of cement will total about 2½ million bbl.

The general location is good because local demand for cement is high and production relatively low. Florida ranks second among the states (after California) in the per capita use of cement, but fewer than half the 10 million bbl. consumed last year were manufactured in the state. Large quantities came from Puerto Rico and Europe and cost Florida builders a premium estimated at from a few cents to 50 cents a barrel. Lehigh estimates the new plant will bring the price down about 10%.

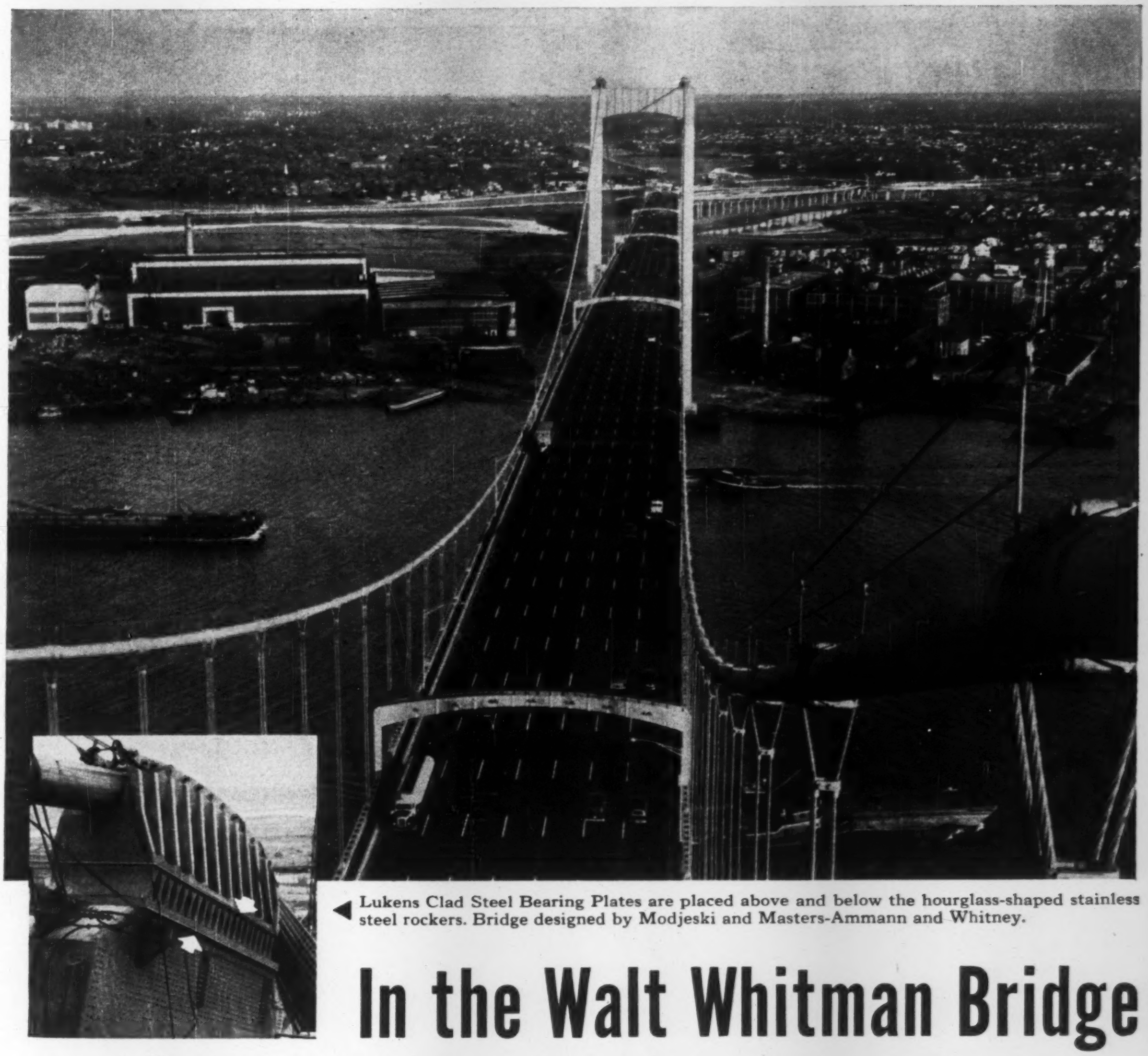
• Dry roads the first need—Work roads and the building site were raised above water by scraping away 2 to 3 ft of muck that covered the rock and replacing it with 6 ft of rock fill. The muck—about 500,000 cu yd—was dumped into the borrow pits from which the limestone fill was excavated.

The site was drained by sump pumps and well points, which discharged into ditches leading to a reservoir created by damming a nearby creek. Pumps transferred the water from the reservoir to the stream.

Ground water infiltrated through cracks in the limestone substrata at such a rate that pumps had to be operated around the clock. In one excavated sump, workers found millions of tiny fish, believed to have been washed from some everglades lake through channels in the rock.

• Silos built with slip forms—Concrete footings were placed as deep as 15 ft into the limestone. To aid in keeping the excavations dry, springs and cracks in the rocks were calked.

The project includes 30 reinforced



◀ Lukens Clad Steel Bearing Plates are placed above and below the hourglass-shaped stainless steel rockers. Bridge designed by Modjeski and Masters-Ammann and Whitney.

In the Walt Whitman Bridge

LUKENS CLAD STEEL BEARING PLATES PROVIDE PROTECTION OF STAINLESS...PLUS ECONOMY!

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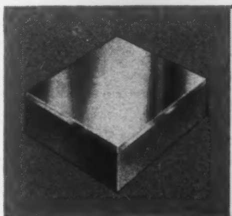
In order to meet varying design demands—particularly with regard to strength—two types of Lukens Clad Steel Bearing Plates are available. The standard type provides a minimum yield of 30,000 psi. A higher strength plate—incorporating A-302, Grade B backing steel for use in larger bridges—will meet a 50,000 psi minimum yield requirement. And all bearing plates can be supplied flattened and machined on both sides to within .010 inch of dead flat.

* **For information you can use,** *write to Manager, Marketing Service, 157 Lukens Building, Lukens Steel Company, Coatesville, Pennsylvania. Be sure to ask for special bulletin 180.*



LUKENS clad steel is a solid plate—one surface corrosion-resistant metal permanently bonded over all to a rugged, yet economical backing steel.

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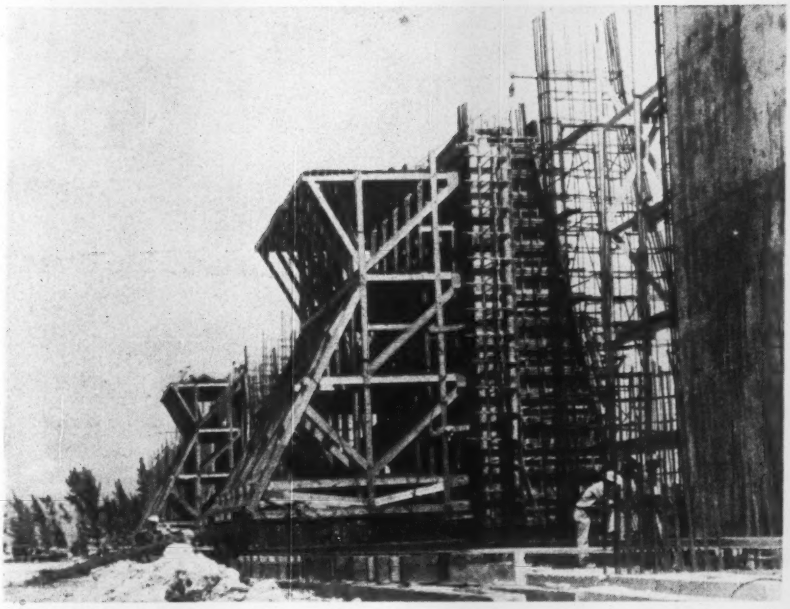
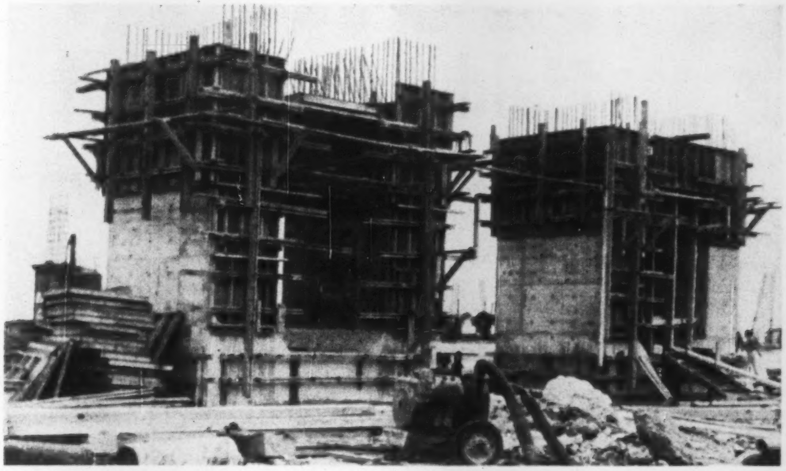
. . Cement plant rises in the Everglades



TRAVELING FORMS moved on rails from one pouring position to another in the casting of two 864 ft long reinforced concrete retaining walls for a storage bin.



SLIP FORMS rose nearly a foot an hour during the seven days of around-the-clock casting that it took to concrete a cluster of fifteen 138 ft high silos.

concrete silos, each with a storage capacity of 16,000 bbl of cement. The contractor built these with slip forms—reportedly the first use of the method in the area.

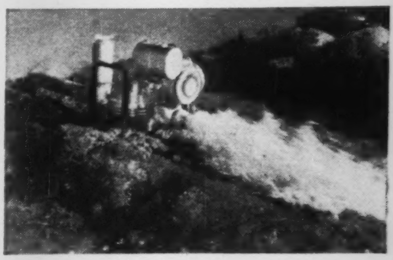
The silos are in two groups of 15—three units wide by five long. Each group took seven days and nights of continuous casting. Hydraulic jacks lifted the forms at the rate of 11 in. an hour to the top of the 138 ft high structures.

Two parallel 864-ft-long buttress-type reinforced concrete retaining walls were constructed to serve as the sides of a huge storage bin. Reinforcement was fabricated in jigs on the ground—one for buttress and column steel and a second for wall steel—and placed by crane.

The forms for the unbuttressed face (storage side) of the walls were mounted on the side of a rail-supported falsework structure that rolled from one pouring position to the next. Forms for the opposite side of the wall and the buttresses were placed by crane.

Scheduled for completion this spring, the new Lehigh plant and a nearby plant being built by the General Portland Cement Co., also scheduled for spring completion, will bring to four the number of portland cement plants operating in Florida.

Full Line of Carryable Construction Equipment Now Offered by Homelite



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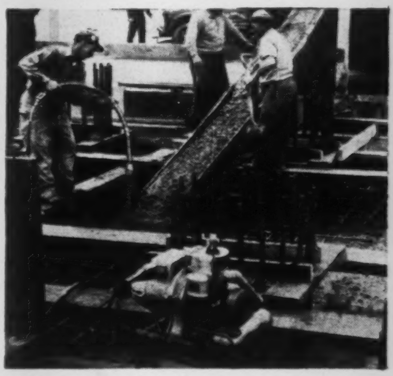

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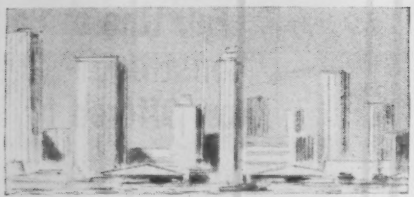
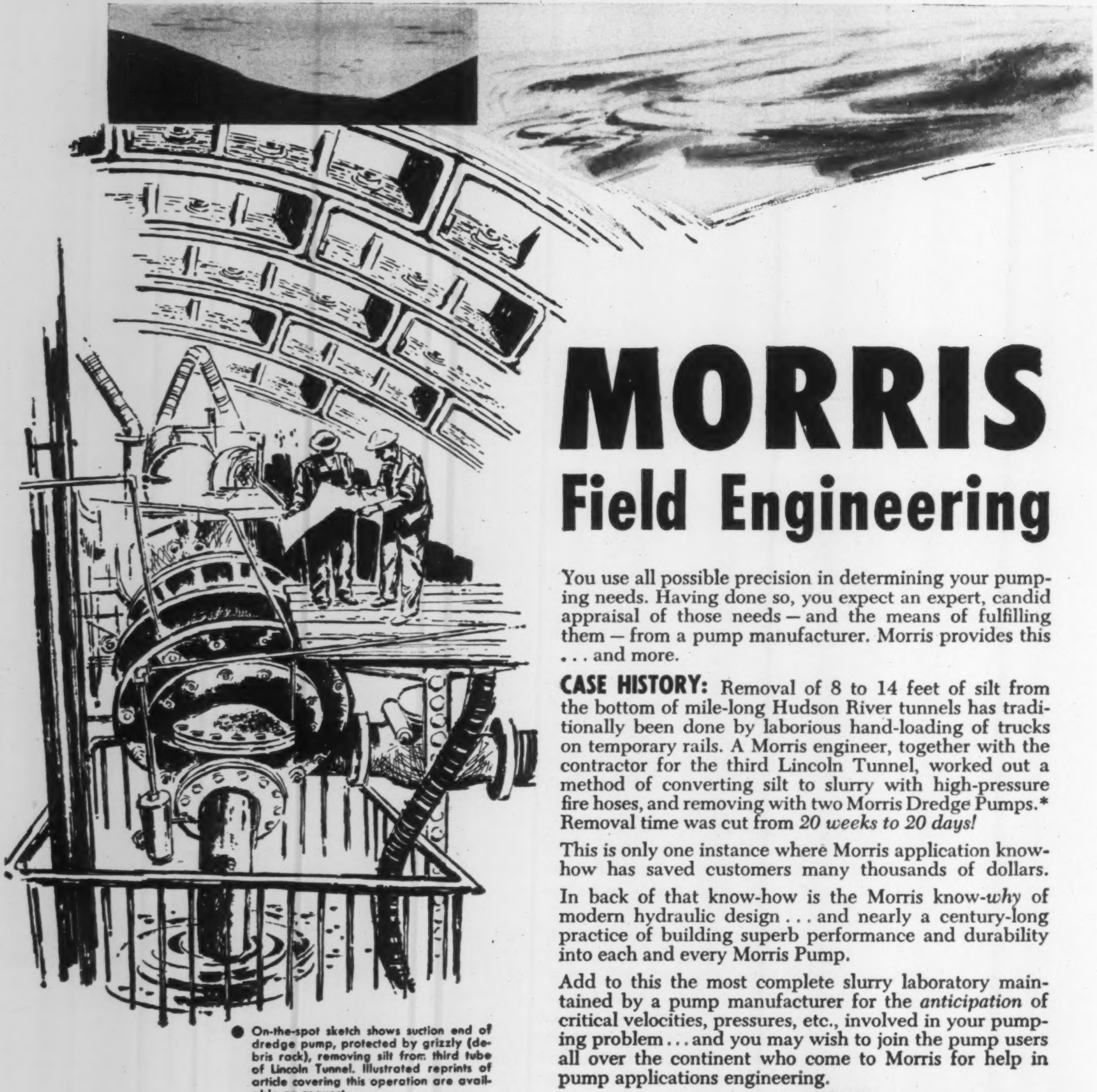


For experience in centrifugal pump applications:



On-the-spot sketch shows suction end of dredge pump, protected by grizzly (debris rack), removing silt from third tube of Lincoln Tunnel. Illustrated reprints of article covering this operation are available on request.

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*Two Morris 10 GA 28½" Pumps (right) were used . . . one as a dredge . . . the other as a booster.

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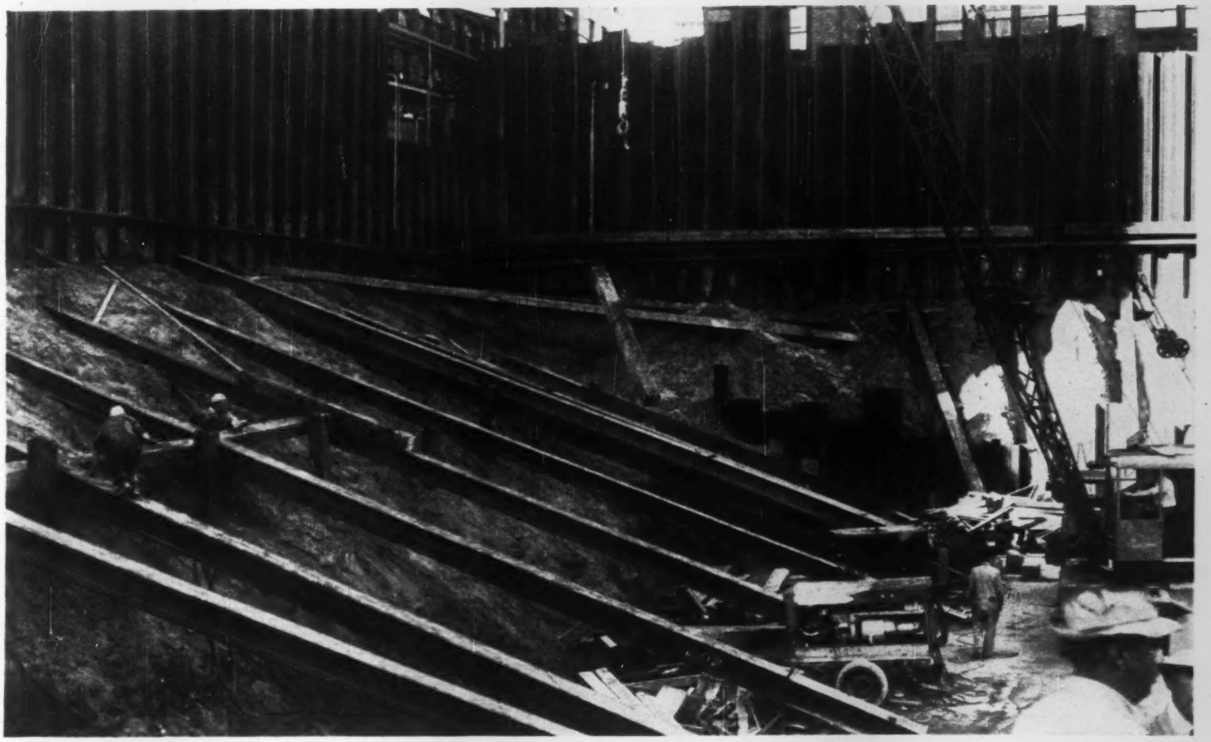


STEEL STRUTS brace the sheetpile walls during foundation construction for a 20-story San Francisco building. Additional struts will be placed as material is excavated. Two water-bearing layers complicated the job.

Model Helps on a Tough Foundation Job

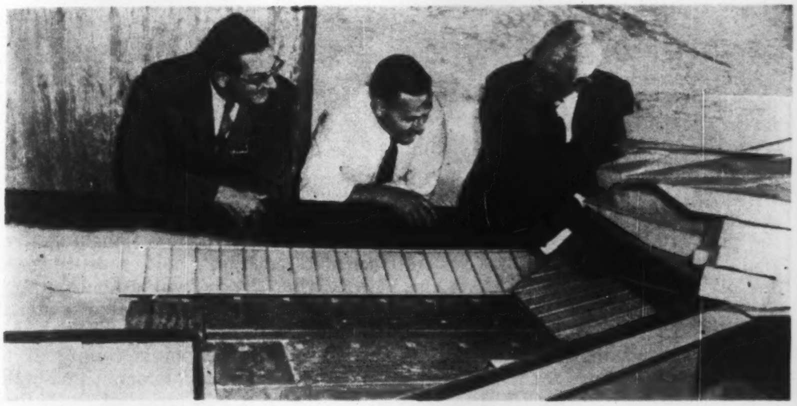
Contractors for the 20 story Crown-Zellerbach building in San Francisco had several critical problems to solve in foundation construction.

- One of the deepest foundation excavations in San Francisco building history with the bottom of the main foundation slab 39 to 47 ft below level of the surrounding streets.
- Location just across busy streets from other tall buildings having foundations at higher levels.
- Two layers of water-bearing sand to combat, with the desirability of keeping the excavation dry but necessity of preventing drawdown under surrounding buildings.
- Construction of foundation slabs up to 8 ft thick which extend almost to the property line on all sides.
- Scheduling work so that the bracing system would provide maximum protection but would result in minimum interference with excavation, reinforcing and concreting operations.

The Crown-Zellerbach site includes an entire wedge-shaped city block bounded by Market, Sansome and Bush Sts. The 20 story tower will be 70 ft wide and 201 ft long facing on Bush St. It will have only two rows of columns on 63 ft centers. Extending out from the tower on the Market St. side and forming the stem of a "T" will be a utility core serving the tower. Except for one corner of the block, the entire site includes a two-story underground garage.

Foundation for the tower is an 8 ft thick concrete slab. The utility core is supported on a 6 ft 9 in. thick slab and the rest of the construction requires a 4 ft thick foundation slab.

• While site is sheeted—First decision made by general contractor Haas & Haynie in connection with the foundation excavation work was to surround the site with sheetpiling. Thus, a relatively tight water-resistant membrane



SCALE MODEL helped contractors plan excavation and bracing. Lightweight plastic represented the excavation. Demonstrating bracing is Ben C. Gerwick, Sr. (right), subcontractor for sheetpiles and bracing. Watching him are Leo Gosliner and Arch Johnson of Haas & Haynie, the general contractor.

. . . Sheetpile bracing couldn't slow excavation

TRUCK MIXERS supply concrete for the 8 ft foundation slab. Pours were about 500 cu yd a day. Trucks operate on day-old concrete, with planks distributing the weight.

would be formed. And, with proper bracing, the sheetpile wall would keep the excavation from caving in.

Two factors influenced this decision. First of all, even before bids were accepted, sheetpiles were reserved for the job by the owner. This resulted from a recommendation by the structural engineers on the conclusion that sheeting was the only practical method of protecting the excavation. Secondly, in the pre-bid stage, sheeting with a bracing scheme was proposed by Ben C. Gerwick, Inc. The Gerwick firm was retained by Haas & Haynie for the sheetpile and bracing work.

An important step was arranging the bracing system for minimum interference with excavation operations and maximum access to the bottom of the hole for construction purposes. To visualize these problems fully, Haas & Haynie constructed a scale model of the excavation. Plywood sides represented the sheetpile wall. Excavation was shown by blocks of lightweight plastic. And small wood sticks took the place of the steel braces.

Haas & Haynie and the subcontractors studied the model in considerable detail. (In addition to the Gerwick organization, subcontractors include Devencenzi & Haskins for excavation, Judson Pacific-Murphy Corp. for reinforcing steel, and Bethlehem Pacific Coast Steel Corp. for structural steel.)

• **Model pays off**—Use of the model proved quite beneficial. For example, it demonstrated that the 60 ft long No. 18 reinforcing bars called for in that part of the foundation underneath the steel struts should be stockpiled in that area before the struts were positioned. According to E. T. Haas of Haas & Haynie, the model showed that it was impossible to place the bars safely later. In addition, the grading contractor was able to plan his excavation procedure by studying the model.

Sheetpile driving was started after excavation was down about 6 ft below street level. Actually, sheetpiles went in on some parts of the block before demolition of the existing buildings on other parts of the block was started. Sheetpiles used were MZ-32 and MZ-38, weighing 56 lb per foot. The steel sheets were up to 65 ft in length, with tips driven to an average of El. −55 (street level varies from El. +5 to El. +12). To make driving easier and to increase the watertightness, interlocks were filled with graphite grease before the piles were driven.

The piles were set in place by a 105 ft Chicago boom on a skid rig having an 83 ft tower. A small steam hammer did the initial driving. The rest of the driving was done with 10B3 and 11B3 steam hammers.

• **Second row of sheeting**—After the sheeting was driven, the site was excavated, leaving the generally sandy material on a slope of about 1½ on 1. This wedge of earth helped hold the sheeting in place by passive resistance while the 8 ft thick, 70x201 ft tower foundation slab was cast. The exception was that one side of the main slab was too close to the street. So an additional second row of sheeting was driven along this side to maintain the desired slope.

Assemblies of short steel beams were cast into the main foundation slab as "kickers" or buttresses for struts. Each assembly was embedded in the slab some 5 or 6 ft and had two faces to serve as foot blocks for two braces that would thrust against them.

After the main slab was cast, the first row of braces was placed. These spanned from the main footing to just above the level of the remaining unexcavated material.

The braces are 14 in. 89 lb H-piles. They bear against wales on the sheetpiles. The wales also are 14 in. members, and where design requires heavier wales, either heavier 14 in. H-piles or double sets of 14 in. H-piles are used. Reason for standardizing on the 14 in. size is partly the availability to the contractors of this size steel and partly that a double 14 in. member is more stable than, say, a 16 or 18 in. member that would resist the same pressures.

Excavation underneath these braces was accomplished by a track-type loader. When the material was excavated below the level of the main foundation slab, a second set of nearly horizontal struts was placed. These also bear against wales on the sheetpile wall.

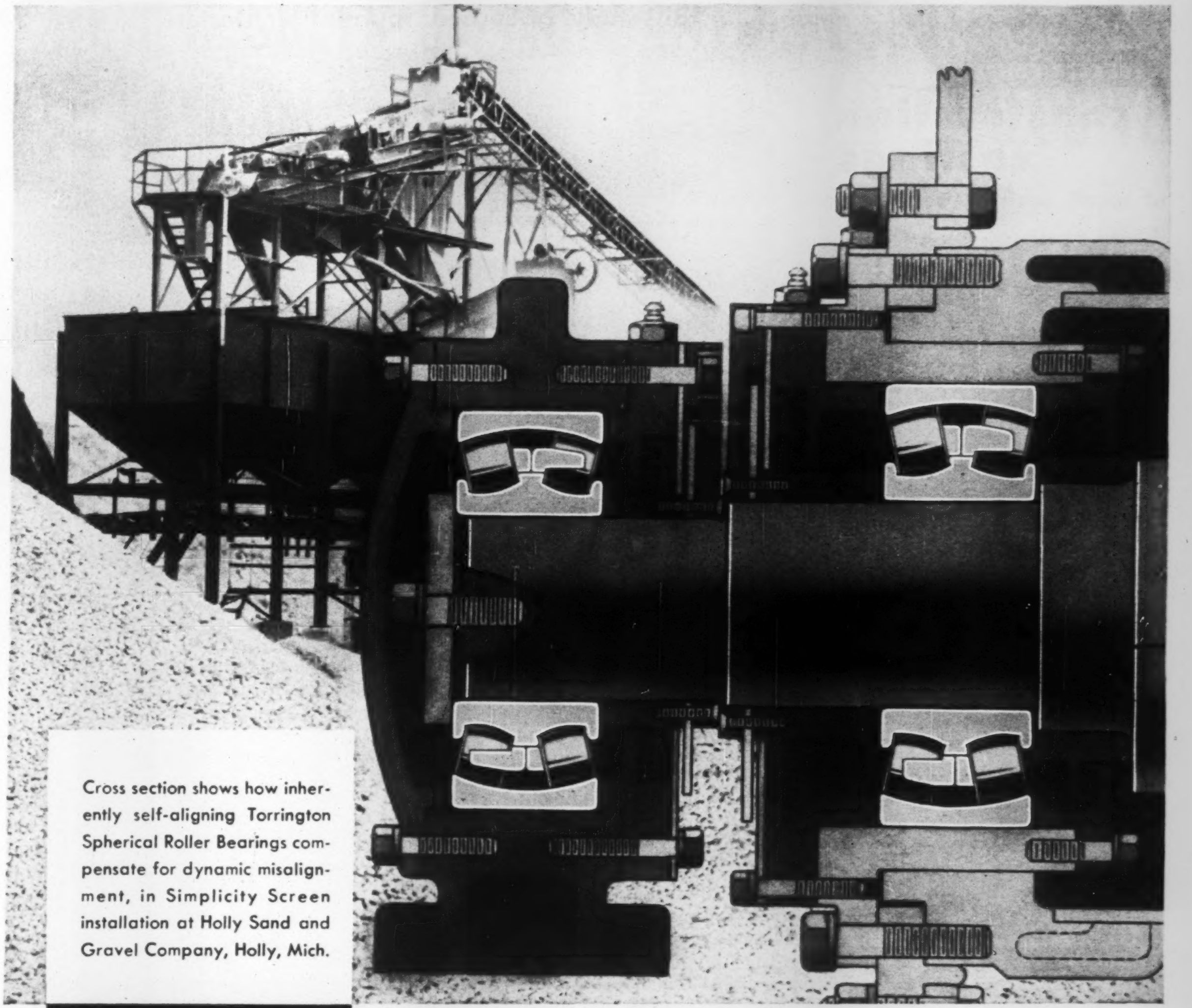
The double set of struts are braced in a vertical plane by 10 in. H-piles driven into the foundation material. These intermediate braces, by reducing the unsupported spans, make possible use of the 14 in. members. Horizontal braces between struts are 10x10 in. timbers. These are so bolted that they can be removed one at a time, if necessary, for access purposes.

• **Struts prestressed**—The struts are prestressed by jacking and wedging a force of about 25 tons into each one. Thus, when the unexcavated material is removed there will be no movement of the sheetpile wall that might be due to the struts shortening or taking up slack under load. This minimizes damage to the adjacent streets.

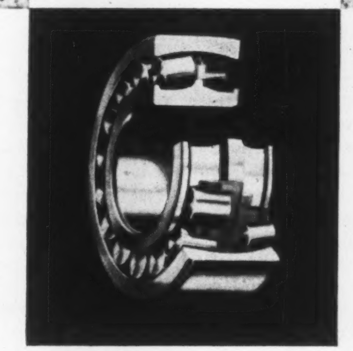
Material excavated is roughly in three layers. There is a surface layer of sand fill, a second layer of compacted clay and an underlying layer of undisturbed sand. The clay layer acts as a watertight membrane. The sand fill on top of this watertight membrane has a water table up to about El. −5. This water table is effectively kept out of the excavation by the sheetpile membrane. And it is important that the water table not be lowered since that might cause settlement of adjacent buildings.

The lower sand layer also is saturated. This water zone must be lowered inside the excavation to permit construction operations and to prevent unexcavated material from sloughing. The natural sand will hold a fairly good slope when dry but will move when wet.

To keep the unexcavated material dry and to dewater the excavation, there is a series of wellpoints connected to a header by plastic hoses. The wellpoints were placed inside of shells that were cased with sand and gravel to keep the wellpoints from plugging. The steel shells then were removed to permit the wellpoints to function.



Cross section shows how inherently self-aligning Torrington Spherical Roller Bearings compensate for dynamic misalignment, in Simplicity Screen installation at Holly Sand and Gravel Company, Holly, Mich.



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Inherently self-aligning, Torrington Spherical Roller Bearings roll freely at full capacity despite deflection of equipment framing or shafts under load.

This feature contributes to smooth operation and long life in Simplicity Engineering Company Screens. Positive roller guidance by the integral center flange provides constant and uniform roller contact with the race under radial and thrust loads, reducing wear and friction under shock and eccentric loading conditions.

Construction equipment of all types benefits from the advanced design features of Torrington Spherical Roller Bearings. To secure unsurpassed performance with minimum maintenance, specify Torrington. **The Torrington Company, South Bend 21, Ind.—and Torrington, Conn.**

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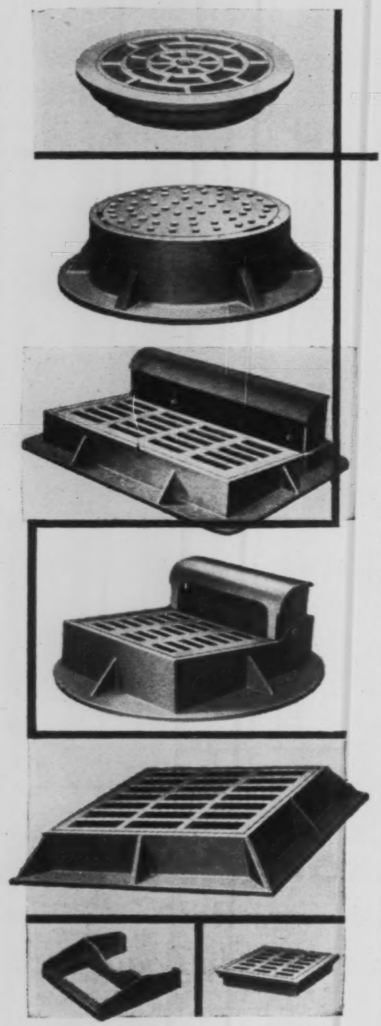

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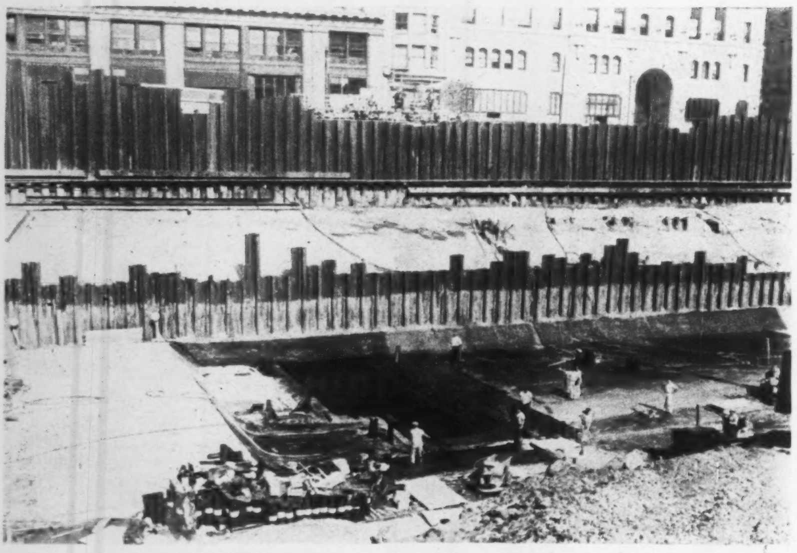
. . . Soil study governed foundation design



SLAB IS WATERPROOFED by placing a membrane between two thin layers of concrete even before reinforcing for the thick foundation is in position.

• Slabs go on sand—The undisturbed sand layer makes an excellent foundation for the building. Results of a soils investigation by Dames & Moore indicate that the material is good for about 6,000 psf. This led directly to the adoption of the flat-slab foundation.

The main 8-ft-thick tower foundation is designed as an inverted slab. The central portion of the tower has only 18 columns—9 along each side spaced on 63 ft centers. This means that there is a tremendous load on the outside part of the main slab, and it accounts for the thickness of the slab.

The massive footing is reinforced both top and bottom. Primary reinforcing in the transverse direction at mid-slab is a double layer of No. 18 bars spaced on 7 in. centers.

This main slab was cast in eight pours, each of about 500 cu yd of concrete. Joints between pours are transverse and are located between column positions at about the point of zero shear. After the initial part of the slab was cast with cranes and buckets, it was possible to drive truck mixers down a concrete-faced ramp of unexcavated material on to the slab. Concrete placed the previous day was covered with 2x12 planks to distribute the load of the truck mixers.

Thickness of the foundation underneath the utility core of the main tower is 6 ft 9 in. Column spacing is closer in this foundation and the slab is correspondingly thinner.

• Expected settling governs thickness—The slab outside the main building area is 4 ft thick. This supports the two-story underground garage. Thickness is dictated by the fact that there will be water pressure on the underside of the slab.

Thickness also is governed by expected differential settlement between the tower and garage sections. And the structural engineers have concluded that the settlement differential can be compensated for by rigidly fixing the garage foundation slab to the tower slab rather than separating the two structures.

The differential settlement results partly from greater tower load. And it is partly due to the fact that swell of underlying material resulting from removal of excavation will be recompressed by tower loading and not by garage loading. The reason is that once the contractor's pumping effort is stopped, water pressure under the garage slab will prevent recompression of the soil.

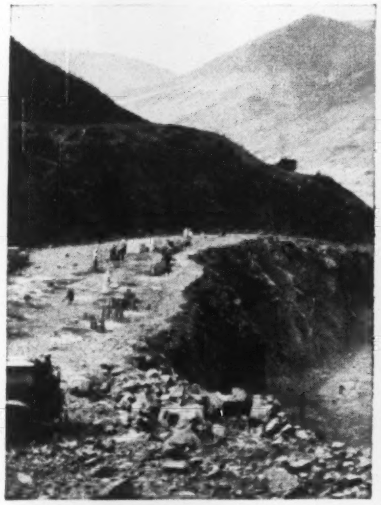
The foundation slabs are waterproofed. A thin layer of concrete was first cast to provide a smooth surface for waterproofing. This was topped by a seven-layer membrane consisting of alternating layers of 15 lb roofing felt and asphalt-dipped, open-mesh, glass-fiber fabric, each layer being mopped with hot asphalt.

The building project was designed for Crown-Zellerbach Corp. by Hertzka & Knowles and Skidmore, Owings & Merrill, associated architects. Structural design is by the engineering office of Henry J. Brunnier.

Superintendent for Haas & Haynie on the job is Arch Johnson. Details of the bracing system were worked out by W. J. Talbot, Jr., chief engineer for Ben C. Gerwick, Inc.

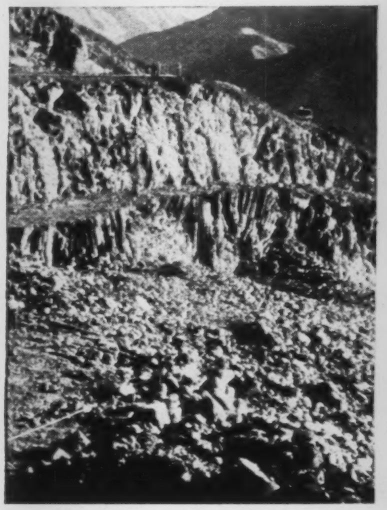
NEW RESULTS OF MONSANTO RESEARCH IN USE OF AMMONIUM NITRATE AS AN EXPLOSIVE

Typical shot with Monsanto's new kind of prilled NH_4NO_3



View of area involved in the blast. Shot was made in heavy columnar basalt at dam site. Used as an explosive: a new, top-quality, prilled NH_4NO_3 that Monsanto research developed to give you optimum savings, safety, speed and ease of handling.

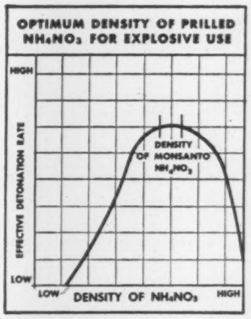
View at time of detonation. The system of detonation recommended by Monsanto, in conjunction with Monsanto Ammonium Nitrate, will yield equivalent pound-for-pound results with 60% gelatin dynamite at one-fourth the cost.

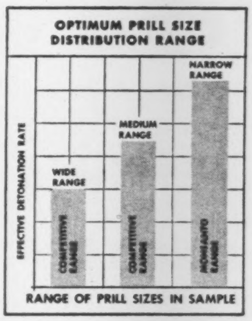


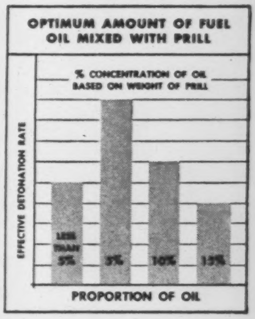
Results of blast. The powder factor in the shot above was 0.4 lbs. per cubic yard. Breakage of rock was considered ideal by contractor. Monsanto's experienced staff can give you complete technical service. Just phone Monsanto.

Photos courtesy of MORRISON-KNUDSEN COMPANY, INC.

Monsanto Ammonium Nitrate is now produced according to the specifications determined by these findings of Monsanto research. Result: more effective blast at greater savings. Monsanto is the world's largest manufacturer of prilled ammonium nitrate—and leader in developing the use of NH_4NO_3 as an explosive for open work. Request report presenting latest research findings.







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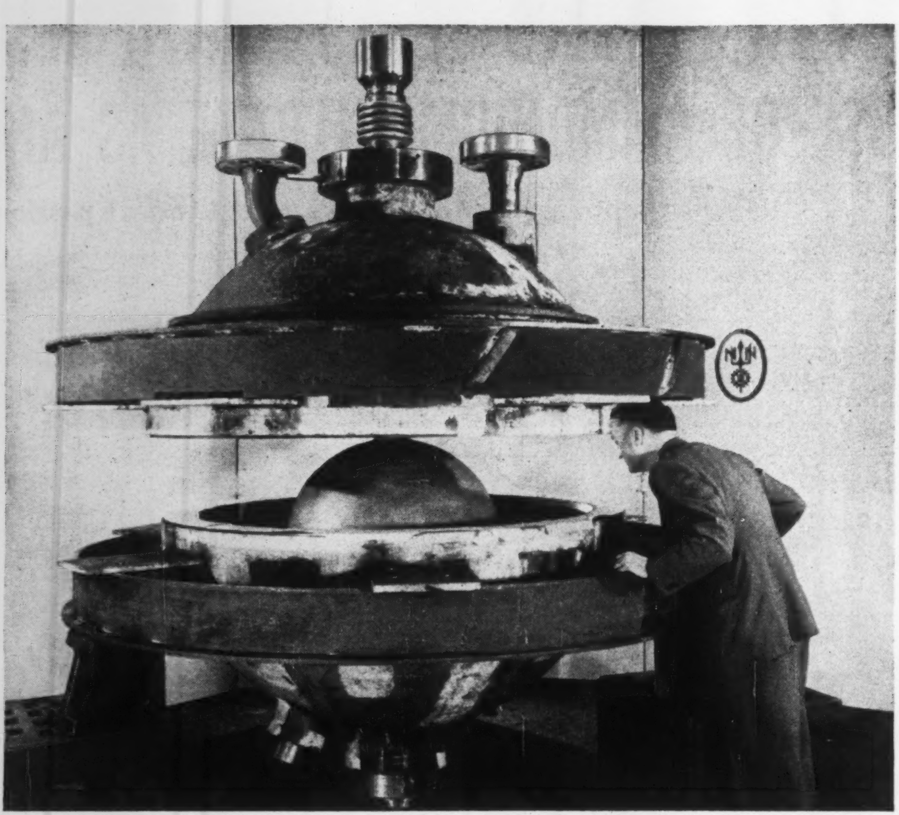


Assembly of zircaloy-2 core tank and pressure vessel for Homogeneous Reactor Experiment No. 2 (HRE-2). The HRE-2 is a 5,000 KW plant designed for AEC by Union Carbide Nuclear Company. Newport News manufactured the 32" I.D. core vessel from 5/16" zircaloy-2, which involved the development of new welding techniques. The pressure vessel of Type 347 stainless clad steel is 4.4" thick, with an inner diameter of 60". Newport News designed the expansion joint between inner and outer vessels, and also produced the unusual coil-cooled blast shield for the unit.

Zircaloy-2 vessel produced by Newport News...for first two-region breeding homogeneous reactor

Never before had a pressure vessel been constructed from zircaloy-2.

Extremely active chemically, particularly at elevated temperatures, this alloy challenged fabrication. Unshielded, heated zircaloy absorbs atmospheric gases in quantities that render its corrosion and physical properties unsatisfactory. Newport News, however, achieved consistent, satisfactory welds by use of inert gas and novel, plant-developed shielding.

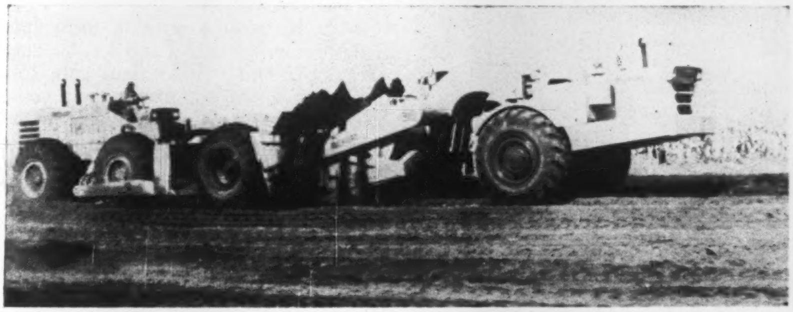
The core tank contains the fuel region where fissioning produces heat. The blanket or reflector region around the tank is confined by a pressure vessel of stainless clad steel.

Newport News, working with its suppliers, developed special fabrication and welding techniques, as well as forge and rolling methods to produce plates and forgings with required corrosion, nuclear and physical properties for both vessels.

Make Newport News your source for fabricated metal structures. See how this company's high integration of skill and facilities can help you. Our illustrated booklet, *"Facilities and Products"*, is yours for the asking. Write for your copy now.

Newport News Shipbuilding and Dry Dock Company
Newport News, Virginia

A 600 HP ENGINE runs Clark's most powerful production model tractor dozer.



HARD AND FAST PUSHER, the rubber-tired dozer quickly helps load a scraper.

Clark's Dozer Is a Big One

Equipped with a 600 hp engine, Clark's new "Michigan" Model 480 tractor dozer is its most powerful production model. The rubber-tired, 52 ton machine, now available after extensive field tests, is engineered for heavy-duty pushloading, roadbuilding and land clearing.

The 480 is powered by a 12 cylinder Cummins turbocharged diesel, shod with four 33.5x33-26 ply tires and armed with a 14 ft blade. The machine, nearly 27 ft long, 14 ft wide and 11 ft 8 in. high, is cited as having a top speed of 28 mph both forward and reverse with torque converter drive.

Reinforced with heavy steel plate for pushloading, the blade pivots forward and back, tilts from side to side, rises up and down, with all movements handled hydraulically from the operator's seat. The unit is fitted with power steering, all-wheel drive, four-speed powershift transmission and planetary-wheel axles.

When pushloading, the Model 480 is claimed to pack material into the scraper bowl at about the rate of one pay yard a second in good working conditions. In tougher loading, such as sand, it is said to virtually match the pushing ability of the largest crawler working in topsoil.

All wheels and tires on the tractor are identical and interchangeable. The operator sits well forward for a good view of the blade. No special operator is required for the Model 480, the manufacturer states. Without foot clutching, levers are moved to change speed and direction. Clark Equipment Co., Benton Harbor, Mich.

Twin-Bearing Sereens Have Heavy-Duty Shafts

After several years of field testing, the makers of SEGO vibrating screens are ready to introduce a line of two-bearing screens with a number of engineering innovations.

The screens are said to be of rugged construction, but at the same time offer smooth and efficient operation for screening sand, gravel, crushed stone, cinders, slag and many other materials.

The shaft is substantially heavier, according to the manufacturer, than generally is used in two-bearing screens of comparable size. Additionally, the bearings are larger and are lubricated by an oil bath. To offset the normal tendency of two-bearing screens to lose vibration amplitude under load, the shaft is made with a greater eccentricity so that the machine is, in effect, a balanced eccentric unit.

The models are offered in single deck construction in 3 x 6 to 6 x 16 ft sizes, double deck in 3 x 6 to 6 x 16 ft sizes, and triple deck in 3 x 6 to 6 x 12 ft sizes. Special models with half decks also are available. SECO Twin-Bearing Screen Booklet, TB-21. Screen Equipment Co., Inc., Buffalo 25, N. Y.

Rubber-Tired Roller Comes In Intermediate Weight

Newest addition to a line of compaction rollers is Model RT-900, an eight-ton, towed-type unit.

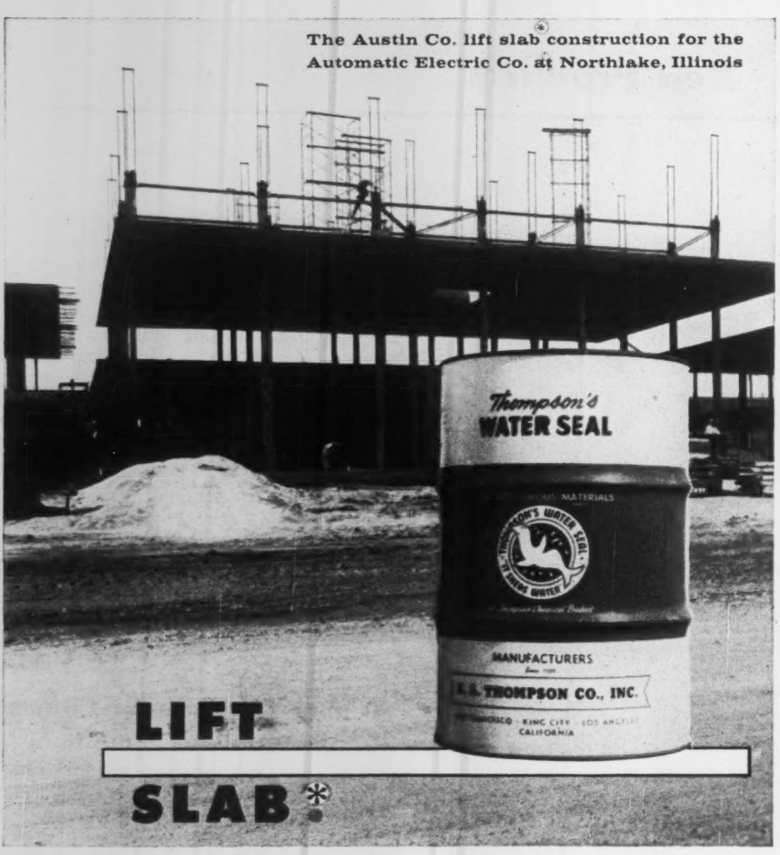
The roller is equipped with nine wheels—five in the rear and four on the front—to provide complete coverage. It can be equipped with either four- or six-ply 7:50 x 15 tires. Weight of the unit empty is 2,700 lb, level ballast capacity is 104 cu-ft. When fully ballasted the unit furnishes seven full tons of compaction. Shovel Supply Co., Box 1369, Dallas 21, Tex.

Portable Hot-Asphalt Plant For Quick Highway Repair

A new portable hot-asphalt plant, said to have greater capacity, lower aggregate charging height, and higher mixed material discharge height than others on the market is called the Wylie Model PM-430 Patchmobile.

Designed specifically for small paving jobs, paving repair and maintenance, this single trailer unit combines the basic principle of a rotary dryer and separate pugmill. When operating as a mobile unit, the plant is towed by the dump truck hauling the sand and gravel for the mix. Material is shoveled from the truck into the charging hopper then fed by reciprocating feeder into the dryer, passing into the batching hopper. The mixed material from the pugmill can be discharged into the shoveling pan, onto the pavement or into a wheelbarrow, as desired.

The plant consists of the charging hopper with reciprocating feeder, ro-



The Austin Co. lift slab* construction for the Automatic Electric Co. at Northlake, Illinois

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*LIFT SLAB is the trademark of the U.S. Lift Slab Corporation, San Antonio, Texas

THOMPSON'S (deep penetrating) WATER SEAL is distributed nationwide by building supply companies and paint and hardware dealers.

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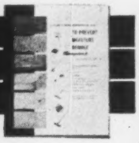

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tary dryer with low-pressure burner heating system, hot aggregate batching hopper, 250 gal asphalt storage tank, pump-driven asphalt metering system, heated and single-shaft pugmill driven by a totally enclosed oil bath gear box. WYLIE MANUFACTURING CO., 640 N. MERIDIAN, OKLAHOMA CITY, OKLA.

Portable Concrete Batcher Charges Transit-Mix Trucks

The "Tumbleweed" is a portable batcher for charging transit mix trucks and is available in 3½ and 5 cu yd sizes. It carries a full-reading, cumulative 24 in. dia weighing scale with a dial, of 20,000 lb capacity, that can be rotated for visibility from any direction.

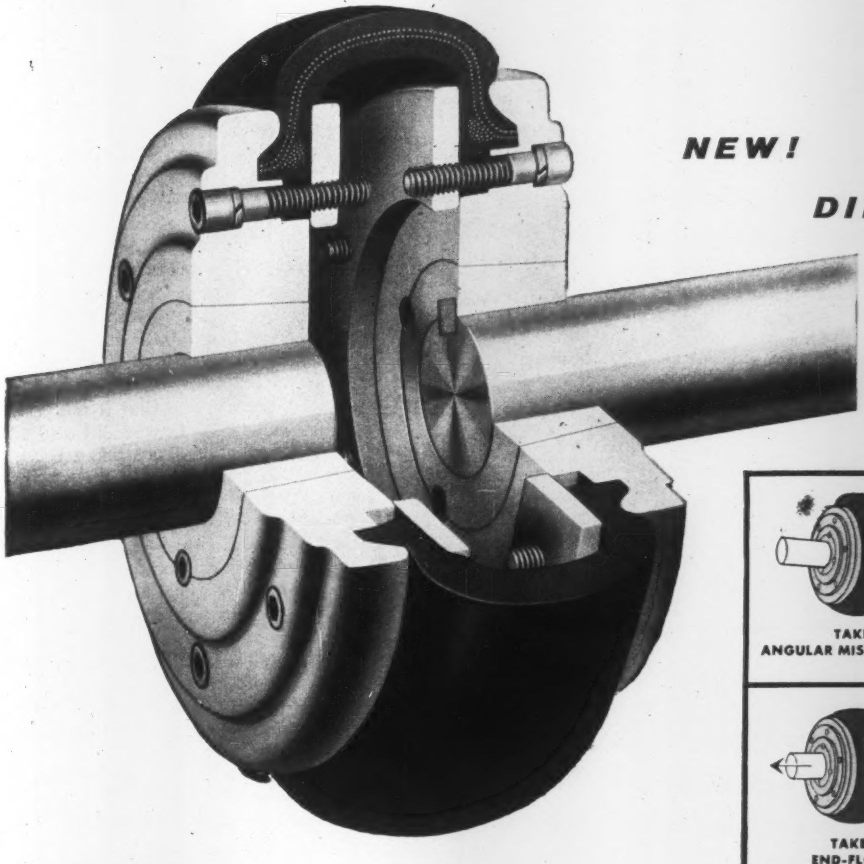
Depending upon hopper size and whether the discharge belt conveyor is 18 or 24 in. wide, the batch plant is capable of 25 to 40 cu yd per hr, states the manufacturer.

A 3/16 in. steel hopper is open for charging on three sides and has 60 deg side slopes and double clam gate for fast, clean discharge to the belt conveyor. The batcher is available with built-in water meter and 1½ in. piping to the charging point of the trucks.

An all-welded frame, built-in axle and towing assembly make setup and moving from job to job a simple operation, says the manufacturer, adding that the Tumbleweed can be towed even while assembled. C. S. JOHNSON CO., CHAMPAIGN, ILL.

. . . New Product Briefs

- **Water reducing agent**—A concrete admixture, PDA, is claimed by the manufacturer to insure maximum water reduction, better cement dispersion and selective initial retardation in all types of mixes. Use of the admixture extends placing and vibration time; this, it is claimed makes possible the placing of even "hot cements" with negligible plastic placement shrinkage. AUTOLENE LUBRICANTS CO., 1331 WEST EVANS AVE., DENVER, COLO.
- **Concrete tester**—A 250,000 lb capacity portable testing machine has been developed for on-the-job testing of concrete and similar materials. Loads are developed by means of a hand-operated, two-speed concentric pump, which actuates the piston of the main hydraulic system so that no electrical or pressure connectors are required. The tester has a large direct-reading gauge and a maximum load pointer. SOILTEST, INC., 4711 W. NORTH AVE., CHICAGO 39, ILL.
- **Air conditioner and furnace**—The "Landmark Up Flo" all-season air-conditioner with oil-fired furnace has



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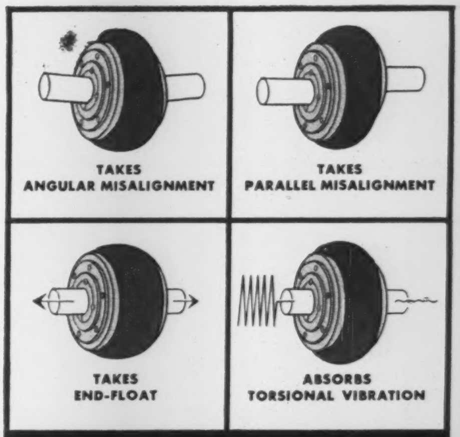

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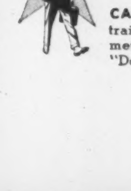
Here is a new type of performance—made possible by the development of a tire-like flexing element. Synthetic tension members, bonded together in rubber, give this element the stamina and dependability of modern, high-speed, high-load, shock-absorbing truck tires—and the ability to respond magically to all manner of changing shaft conditions.

Para-flex takes minimum space on the shaft. Mounting is simplified through the use of standard Taper-Lock bushings—no reboring, no machining. Safety is promoted by flush design; there are no protruding parts. No lubrication is required, no periodic inspection. And since the flexible member is molded with a transverse split, it can be replaced *without moving either the driver or driven machine.*

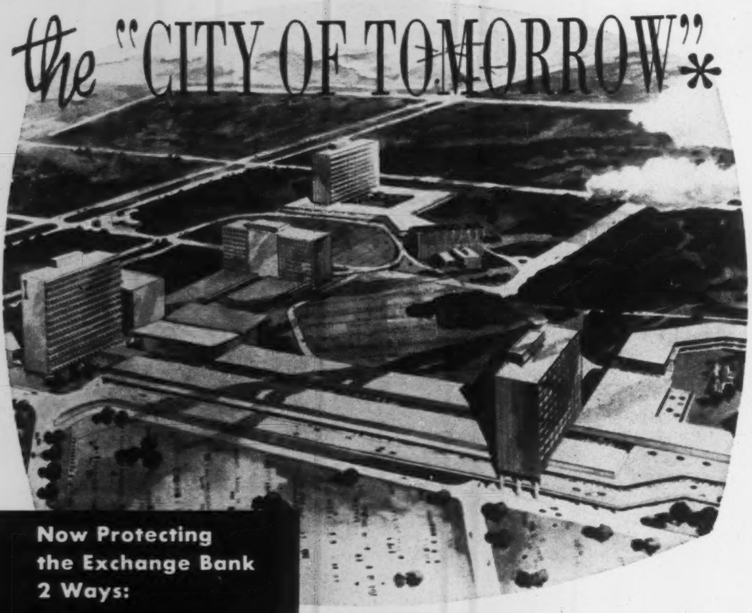
Para-flex Couplings are stocked by Dodge Distributors in popular transmission sizes. They are available from factory stock in capacities up to 825 hp at 1200 rpm. Call your distributor for early delivery to *make your own test.* You'll witness something revolutionary!

DODGE MANUFACTURING CORPORATION, 6900 Union, Mishawaka Ind.

DODGE
of Mishawaka, Ind.



CALL THE TRANSMISSIONEER—your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new, cost-saving methods. Look in the *white* pages of your telephone directory for "Dodge Transmissioneer."



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separate cabinets for the heating, cooling and blower-filter sections, which are aligned by centering pins into a single assembly. It is designed for closet or basement installation. When the cooling function is not immediately desired, cooling cabinet and ductwork may be installed with the furnace, and the cooling coil inserted later. Lennox Industries, Inc., Marshalltown, Iowa.

• **Shift attachment**—A slope shift attachment for the manufacturer's G-3 series of 15,000 to 20,000 lb. capacity lift trucks can tilt a load 6 deg either right or left, permitting the piling of lumber on an angle so that it will shed water. Yale and Towne Manufacturing Co., 11,000 Roosevelt Blvd., Philadelphia 15, Pa.

• **Lightweight structurals**—Two joist sections—a 10 in. weighing 11.5 psf and a 12 in. weighing 14 psf—each with 4 in. flanges, are being produced by Jones and Laughlin Steel Corp., 3 Gateway Center, Pittsburgh 30, Pa.

• **Adding machine**—A special adding machine that adds and subtracts feet, inches and fractions of inches, without the necessity of converting fractions to their decimal equivalents, is available. Special Machines Dept., Victor Adding Machine Co., 3900 N. Rockwell St., Chicago 18, Ill.

• **Reversible shingles**—Reversible hip and ridge asphalt roofing shingles, with different colors on opposite ends, are available in 9 x 12 in. size. Barrett Div., Allied Chemical and Dye Corp., 40 Rector St., New York 6, N. Y.

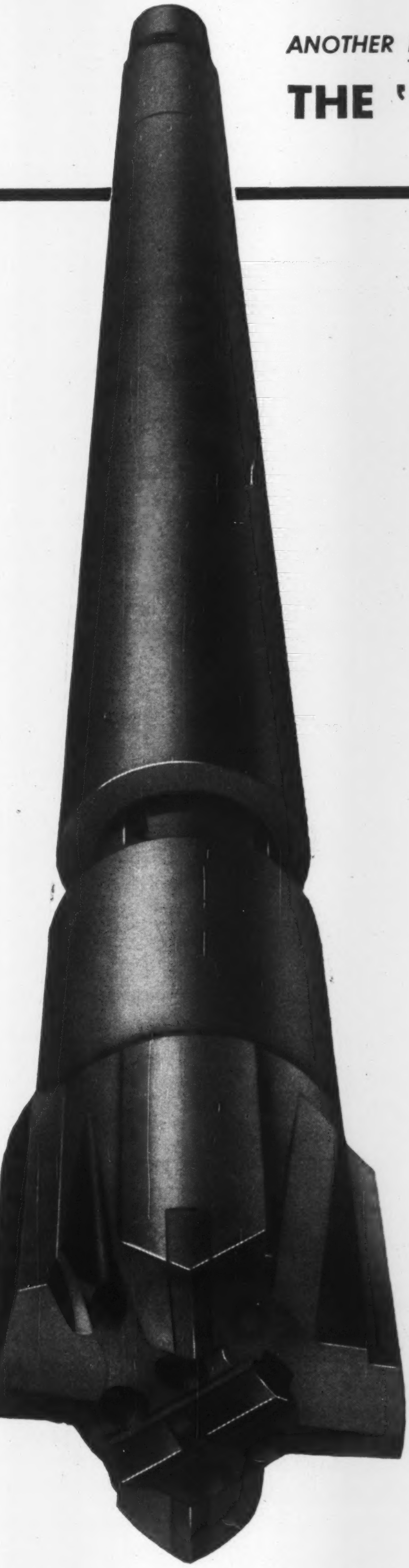
• **Weatherproof window**—A steel window for general use that will not require painting during many years of outdoor exposure is on the market. Key to the new development is a special paint process, "Supercoat", that seals the surface against attacking elements. Republic Steel Corp., Youngstown 1, Ohio.

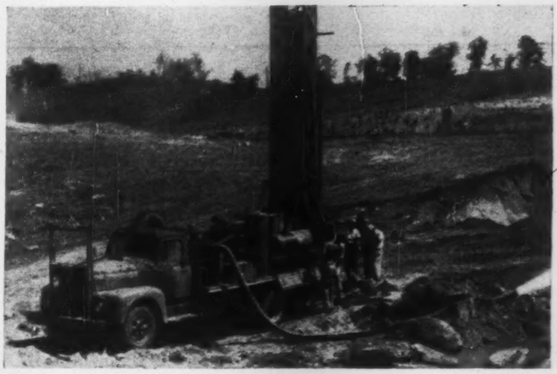
• **Concrete vibrator**—A device to vibrate concrete in extremely confined areas has been developed. "Sabre" blades, which, according to the manufacturer, operate up to 10,000 rpm at high cycle, come in varying lengths and attach to Dart vibrators. Dart Manufacturing Co., 1002 S. Jason St., Denver, Colo.

• **Telescoping standpipe**—A molded plastic standpipe that is claimed to prevent flooding on basement floors can be obtained for $12.95. The four-section unit works on the principle of an expanding telescope and begins to rise when water pressure reaches 2½ lbs, providing up to 32 in. of flood protection without leakage, according to the manufacturer. Walton Associates, 913 N. Rush St., Chicago, Ill.

ANOTHER NEW SCHRAMM PRODUCT...

THE "DOWN-THE-HOLE" TOOL





"Down-the-Hole" Tool operates from Schramm Rotadrills, which offer fast transportation, easy set-up, economical operation.

FOR THE FASTEST, CLEANEST DRILLING IN HARD ROCK ADD A PERCUSSION TOOL TO YOUR ROTADRILL

Here's the fastest-drilling tool you've ever seen for making hole in hard rock. Penetration rates vary with the rock, but average rates for the Schramm "Down-the-Hole" Tool are 15-20 feet per hour in hard trap rock and 25-30 feet in hard limestone. *Reason:* The "Down-the-Hole" Tool picks up where rotary drilling leaves off . . . makes fast, deep holes where many drills are stopped.

Heavier piston—delivers more energy per blow—525 blows per minute for better breakage, faster penetration and less wear on the gauge.

Full force at tool—none lost through the drill pipe.

No floating sub required, as with some tools. Automatic, positive down feed maintains pressure for controlled drilling all the way down.

Controlled percussion delivered directly to bit for greater fracturing action.

Clears the hole of cuttings or water by passing full capacity of compressor plus stored air through tool—not restricted as in other tools.

Drills under water—operation not stopped by submersion . . . ideal for submarine drilling.

More rugged marine drilling—longer life, heavier duty, fewer parts, simpler construction.

A size to fit all Schramm Rotadrills—Truck or Pneumatractor mounted—past, present or future—without affecting their use as rotary drills.

Straighter, cleaner holes—faster drilling time.

GET FREE INFORMATION. Now is the time to cut your rock-drilling time and costs with Schramm's new "Down-the-Hole" Tool. Write us for complete details.

See the Yellow Pages for local Sales, Service and Rental of Schramm Air Compressors.

Schramm, Inc.

MANUFACTURERS OF AIR COMPRESSORS

730 North Garfield Ave. **West Chester, Pa.**

FELLOW VISIONARIANS: K&E Albanene® Tracing Paper keeps your originals clear for life . . . substantially lowers your operating costs.

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It will pay you in lower operating costs to specify K&E Albanene® . . . the largest selling tracing paper in the world. For other drafting or engineering equipment and materials also look to Keuffel & Esser Co. —your "Partners in Creating"—who have served engineering for 90 years.

KEUFFEL & ESSER CO. New York, Hoboken, N.J., Detroit, Chicago, St. Louis, Dallas, San Francisco, Los Angeles, Seattle, Montreal.

Publications

Electronic computers—A description of how to program the Bendix G-15 general purpose electronic digital computer is contained in a six-page bulletin. Specifications, accessory equipment and applications also are covered. BENDIX COMPUTER DIV., 5630 ARBOR VITAE ST., LOS ANGELES 45, CALIF.

Core drills—Bulletin No. 29 describes the Acker Hillbilly core drill. A discussion on the portable core drill is given as well as specifications and other data. ACKER DRILL CO., INC., P.O. BOX 830, SCRANTON, PA.

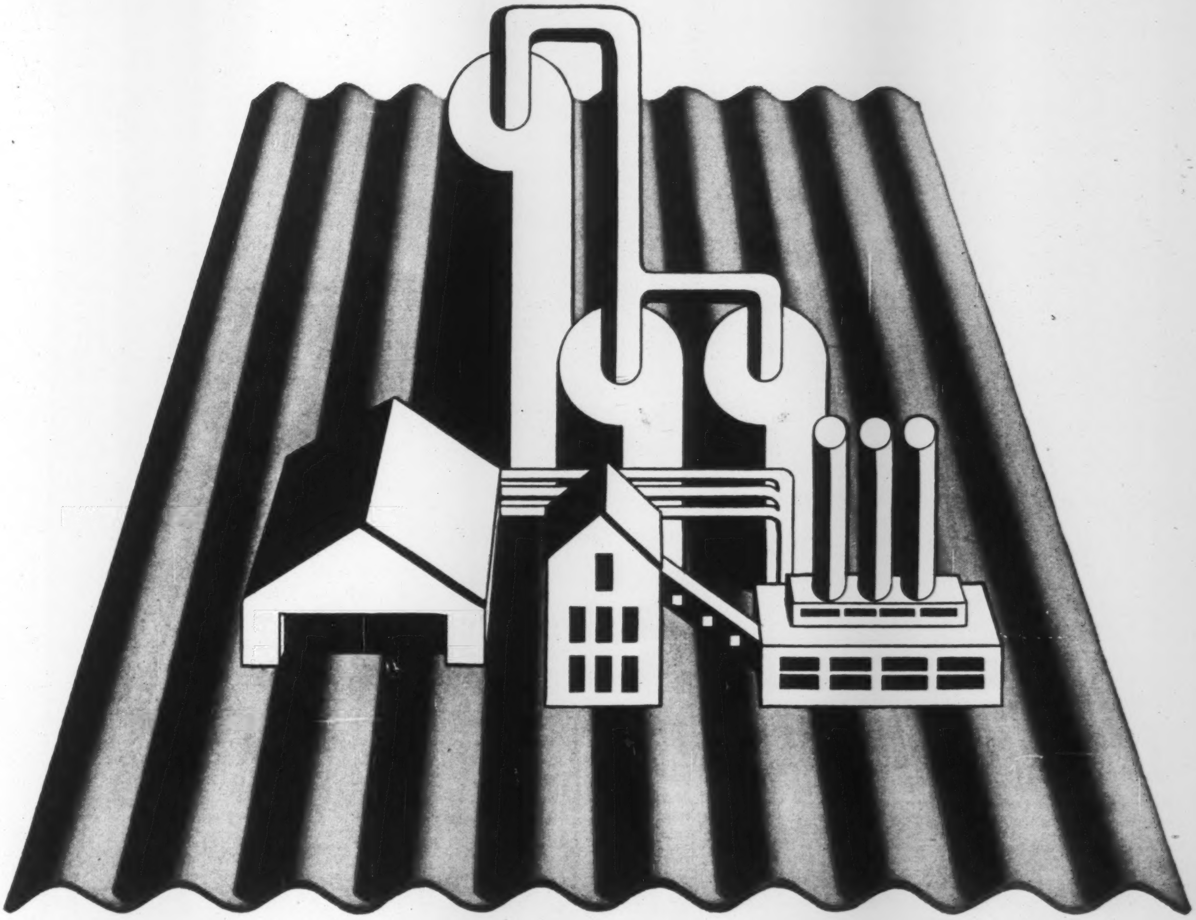
Sanitary landfill—A color brochure titled "Modern Methods in Sanitary Landfill" has chapters dealing with advantages and types of sanitary landfill, site selection and equipment required. Included is a two-page picture story that takes the reader through a typical town's sanitary landfill. THE OLIVER CORP., INDUSTRIAL DIV., 19300 EUCLID AVE., CLEVELAND 17, OHIO.

General equipment—Schield Bantam Co. now has available a new revised general equipment catalog. The 36 page brochure offers complete specifications and capacities for the entire equipment line, including crane carriers, crawler and sled-propelled models. In addition, all 10 specially designed attachments are fully described. FORM 156R, SCHIELD BANTAM CO., WAVERLY, OHIO.

Trucks—A four-page brochure, giving basic specifications and components of FWD six-wheel trucks for ready-mix concrete service is available. The brochure provides data on trucks for all mixer capacities. READY-MIX FOUR-WHEEL DRIVE AUTO CO., CLINTONVILLE, WIS.

Scraper—The Euclid Division of General Motors Corp. has published a 24 page catalog describing its Model TS-24 Twin Power Scraper. The catalog details the development of the Twin Power principle, and explains many other features included in the machine. Performance figures and condensed specifications are included. FORM 554, EUCLID DIV., GENERAL MOTORS CORP., CLEVELAND 17, OHIO.

Shovel—A six-page illustrated brochure describes the 3 yd Model 3600 shovel that is also convertible to crane, dragline and clamshell applications. Specifications of the shovel are included. MANITOWOC ENGINEERING CORP., MANITOWOC, WIS.



for CHEMICAL PLANTS, too– Ruberoid Corrugated Asbestos REDUCES COSTS

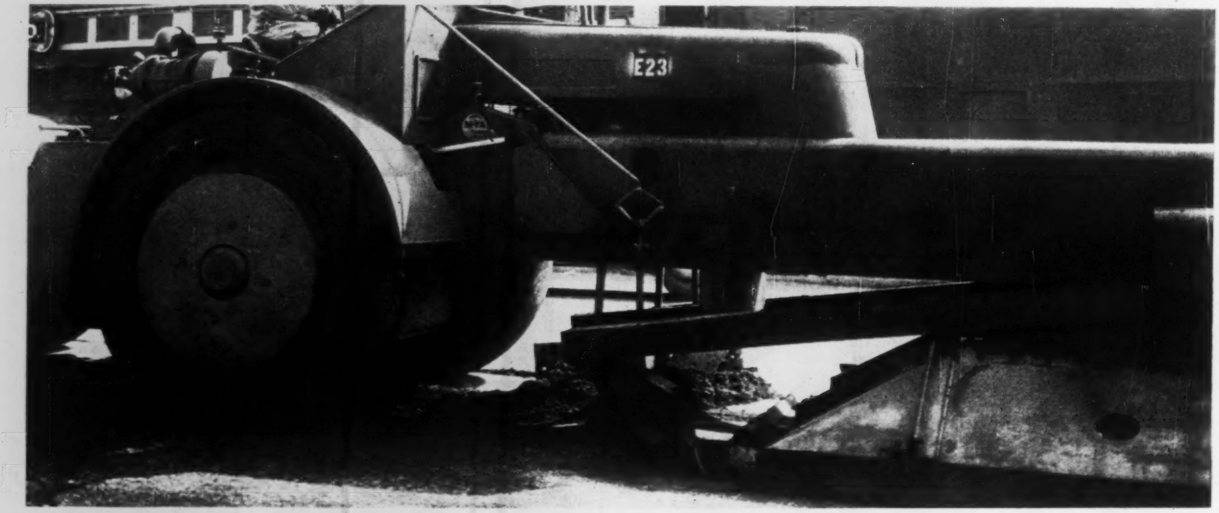
Costs are reduced – both in construction and maintenance – for chemical plants using roofing and siding of Ruberoid Corrugated Asbestos. The sheets are economical to buy, and their light weight makes possible a skeleton framework construction requiring less costly footings.

Maintenance is almost eliminated, for these strongly made sheets of inorganic asbestos and cement never need paint and will last as long as the building. Completely fireproof, Ruberoid Corrugated Asbestos resists acids, fumes, smoke and steam – a real dividend for the chemical plant. Buildings using Ruberoid Corrugated Asbestos are assured of long life with an absolute minimum of maintenance.

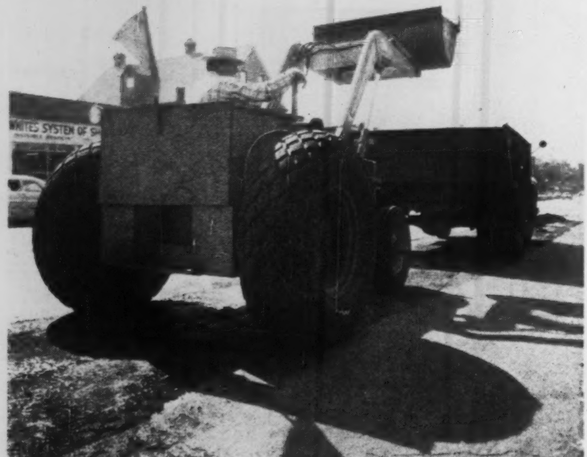
For complete specification and application data, write The RUBEROID Co., 500 Fifth Avenue, New York 36, New York.

The **RUBEROID** Co.

ASPHALT AND ASBESTOS BUILDING MATERIALS



Heater-planer scrapes out corrugated asphalt pavement in St. Louis streets . . .



. . . **forming** windrow for tractor-shovel to deposit in truck . . .

. . . **leaving** smooth surface (dark patches) to take seal coat.

Cheap and Traffic-Sparing Way to Repair Streets

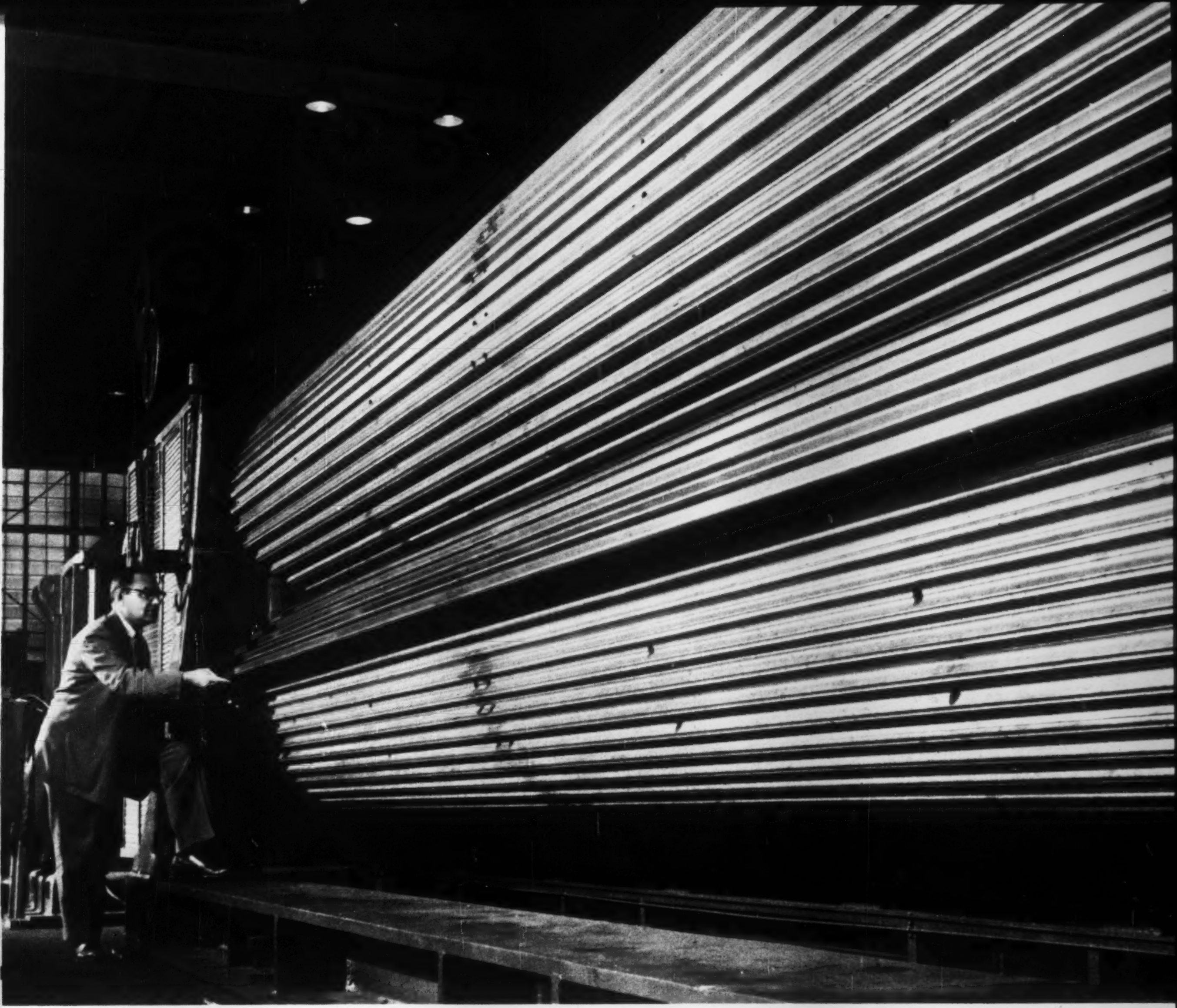
By turning to the use of heater-planers, St. Louis has reduced the cost of removing corrugated asphalt pavements from $1.10 to 13 cents per sq yd, according to Charles G. Gilmore, superintendent of the street maintenance section of the city's department of streets.

With a large percentage of its 1,100 miles of street and 500 miles of alley paved in asphalt, St. Louis was hard-pressed to keep up with maintenance needs, with only three small surface heaters to remove the patches of deteriorated surface. Then in 1953 it purchased a mobile heater-planer unit, and another in 1955. With them, the city averages 250,000 sq yd of pavement removed each year, with minimum inconvenience to traffic.

The heater-planer quickly moves into position over the cracked and spalled stretch of pavement, shaves down the surface and leaves a windrow along the center of the leveled section. A tractor-shovel deposits this windrow into dump trucks immediately following the heater-planer. Crew for these operations consists of one foreman, two truck drivers, two laborers plus the equipment operators.

In most cases, the heater-planer treatment is followed with an asphalt seal coat and ⅜ in. traprock. The heater-planers are used all year round, except for the most inclement weather.

The scraped material is used on unmade streets and alleys, and for plugging frost holes in all types of pavement.



THE FIRST SHEET to roll from Granco's giant new corrugator is Heavy-Duty Corruform, a steel base for concrete floor slabs. Inspecting the sheet is Mr. L. D. Harmony, President of Stamco, Inc., designers and builders of the corrugator.

Granco installs world's largest corrugator to re-style and improve entire product line

New equipment fabricates longer, stronger, more uniform sections of Corruform, Tufcor, Cofar, Structur-Acoustic and Roof Deck to provide better floor and roof systems.

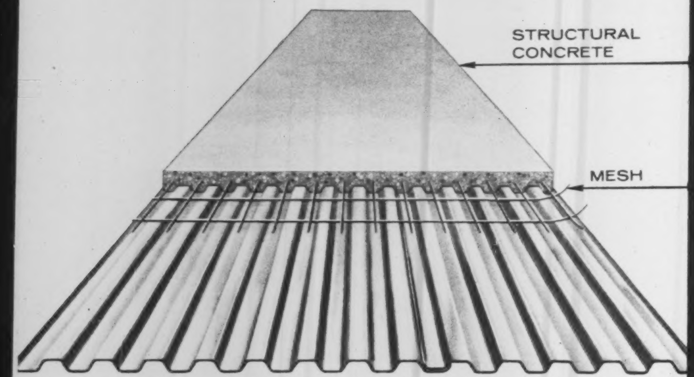
Today, the world's largest sheet steel corrugator is installed and ready to roll! Granco Steel Products Company's mammoth new machine corrugates longer sheets than ever before possible . . . *sheets up to 21½ feet long!* Designed to revamp Granco's entire product line and bring new strength, speed and economy to floor and roof construction, the corrugator took more than two years to build, weighs 310,000 pounds, stands over 15 feet high. New features include: **1.** an ingenious hydraulic system that raises and lowers the top roll to permit variations in the depth of corrugated products; **2.** power for both *top* and *bottom* rolls to insure greater product uniformity; **3.** a pressure-driven lubrication system that prevents operation of the machine until it is properly lubricated; and **4.** dies carefully designed in Granco's own Research Department and machined to tolerances of .002″. Now turn the page for a look at . . .

NEW GRANCO PATTERNS ▶

Here they are! Granco's

for stronger floor

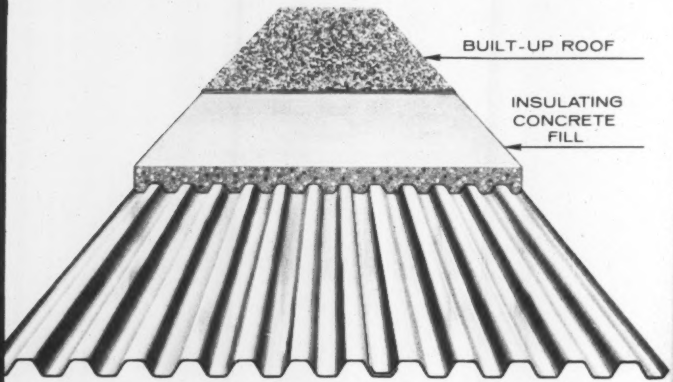
FLOOR SLABS WITH STEEL JOISTS


STRUCTURAL CONCRETE
MESH

Granco CORRUFORM®

Uncoated or galvanized steel base for concrete floor slabs. 50% higher sheet strength (section modulus). Standard Corruform is available in lengths up to 12 feet 3 inches for floor spans to 3½ feet. For spans from 3½ feet to 5 feet, Heavy-Duty Corruform comes in lengths up to 18 feet 4 inches.

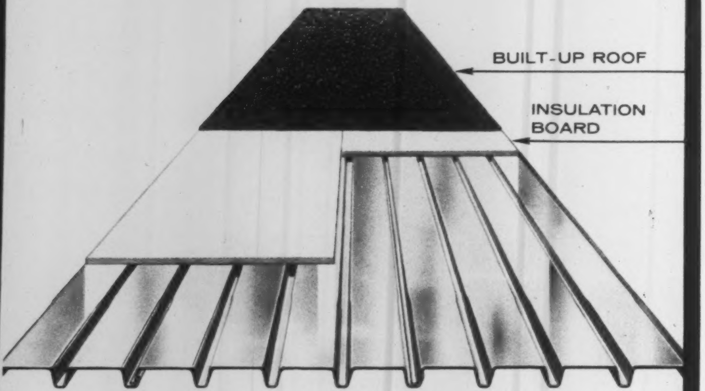
FIRE-RESISTANT ROOFS


BUILT-UP ROOF
INSULATING CONCRETE FILL

Granco TUFCOR®

Tough-temper steel sheets, galvanized for permanency. New pattern boosts strength 25%, increases effective span range from 7 feet to 8 feet with a 30-psf roof live load. Sheets are available up to 21½ feet long in 24, 22, 20 and 18 gage. Provides effective vapor barrier.

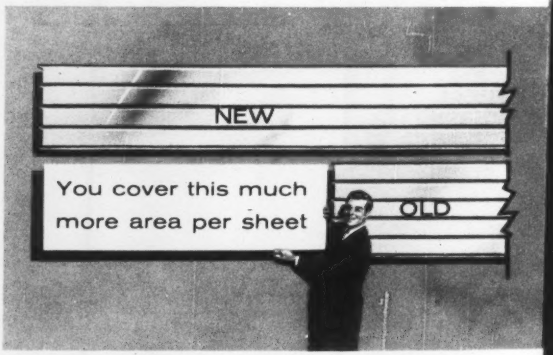
FAST, ECONOMICAL ROOFS


BUILT-UP ROOF
INSULATION BOARD

Granco ROOF DECK

New steel sheets blanket up to 43 square feet, cover 24 inches, adapt to all roof sizes. Greater carrying capacity! Wide rib openings for easier plug welding and faster erection. New phosphate coating and flint-hard enamel finish protect deck years longer. Available in 18, 20, 22 gage.

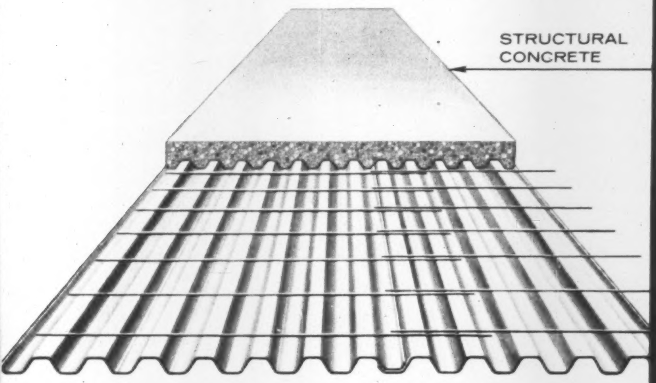
CHECK THESE IMPORTANT


NEW
You cover this much more area per sheet
OLD

FASTER CONSTRUCTION. Sheets are up to 50% longer! Workmen can cover 50% more area *with every sheet placed!* Extra length means less lap area, fewer welds, faster jobs, lower cost. These new features come to you with no increase in Granco prices!

new product patterns
and roof construction

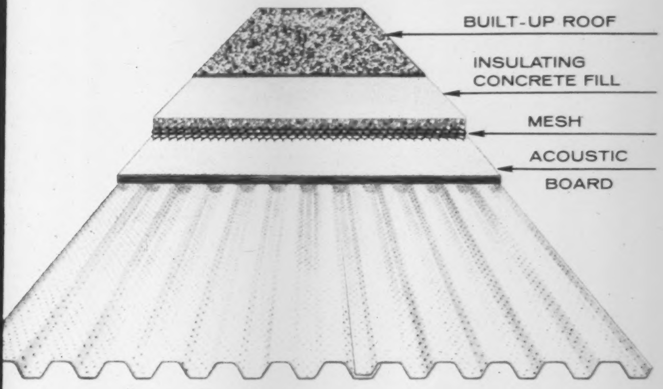
FLOOR SLABS WITH BEAMS



Granco COFAR®

High-strength, galvanized steel sheets with transverse wires welded across the tops of corrugations. New pattern increases effective span range from 14 feet to 18 feet. Available in 24, 22 and 20 gage. Cofar units integrate with Granco's E/R Cofar cells for complete electrification.

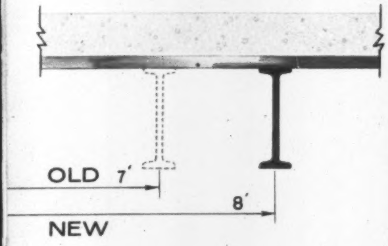
ACOUSTICAL-CEILING ROOFS

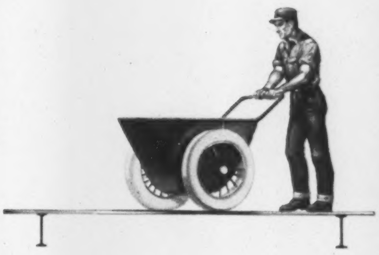


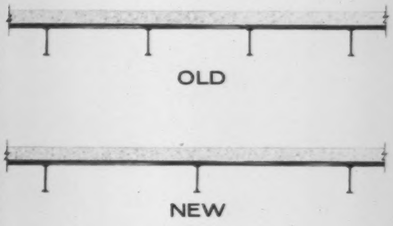
Granco STRUCTUR-ACOUSTIC

Galvanized corrugated steel sheets with an acoustic underside. New pattern increases sheet strength 25%, increases span range to 8 feet. Available in 24, 22, 20 and 18 gage. Makes possible acoustical roof system only 5 inches deep with "U" value 0.14. Entire system weighs less than 9 psf.

CONSTRUCTION BENEFITS OF GREATER SECTION LENGTH AND STRENGTH







VIDER SPANS POSSIBLE. To meet the rend in long-span construction with joists or eams, new Granco sheets make possible coninuous spans for less deflection, greater trength, economy and freedom in design.

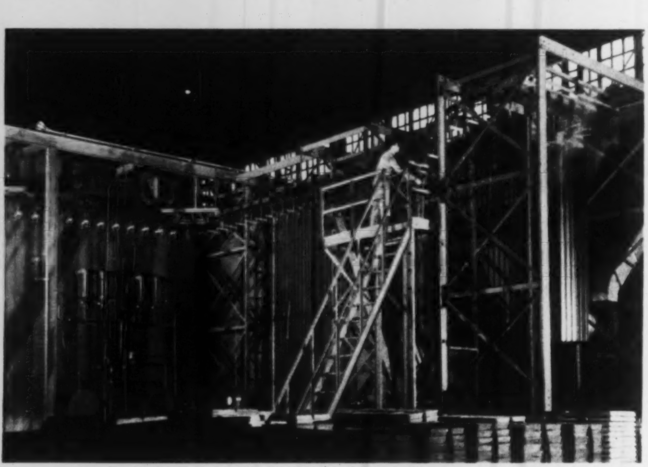
SUPPORTS MORE WEIGHT. New angular pattern increases sheet strength. Sheets support concrete buggies, welding machines, other heavy loads without buckling . . . provide safer work platforms *without shoring*.

REDUCES FRAMING COSTS. Longer sheets — continuous over several supports — cut cost of framing in multi-span construction. New Granco products help make buildings stronger yet lighter.

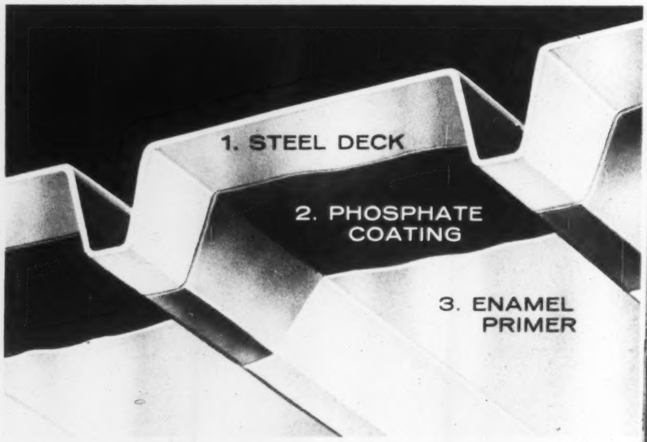
URN THE PAGE FOR ANOTHER IMPORTANT ECONOMY FEATURE OF GRANCO ROOF DECK ▶

New Flo-Coat Line applies rust-resistant, flint-hard paint to Granco Steel Roof Deck

Important new addition to Granco facilities is the modern Flo-Coat Paint Line that applies a tough protective coating to Granco Roof Deck. Replacing conventional dip or spray equipment still used by many manufacturers, this superior new paint line gives sheets a phosphate coating that protects base metal, prepares it for painting. Granco Roof Deck receives both a phosphate coating and primer coat of battleship grey enamel. To find the best protection against abrasion, damage and rust, Granco research engineers put *hundreds* of sample coatings through exhaustive lab tests, chose a finish that adds *years* of life to Granco Roof Deck.



IN THIS NEW PAINT LINE, enamel is "flo-coated" over Granco Roof Deck sheets. Baked on at 400° F. for 20 minutes, the resulting flint-hard finish adheres tightly, resists rough handling and chemical corrosion.



CUTAWAY SECTION of new Granco Roof Deck shows protective coatings that withstand bending, chipping, cracking and exposure to adverse weather. A finish paint coat may be field-applied, if desired.

FOR MORE FACTS ON EVERY PRODUCT IN GRANCO'S NEW LINE . . .

MAIL COUPON NOW!

FIVE FREE TECHNICAL MANUALS describe uses, specifications, physical properties, load-carrying capacities, applications and advantages of new and improved Granco products.

CHECK MANUALS YOU WANT TO RECEIVE:

- ☐ CORRUFORM AND TUFCOR FLOORS
- ☐ COFAR AND E/R COFAR FLOORS
- ☐ TUFCOR AND STRUCTUR-ACOUSTIC ROOFS
- ☐ GRANCO STEEL ROOF DECK
- ☐ GRANCO GUARD RAIL

GRANCO STEEL PRODUCTS CO.
Dept. 83, 6506 N. Broadway, St. Louis 15, Missouri

*Name*____________________
*Firm*____________________
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*City*______________ *State*__________

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A Subsidiary of SINCE GRANITE CITY STEEL 1878 ® **Granite City Steel C**

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EXECUTIVE OFFICES: Granite City, Illinois
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TIDEWATER OIL COMPANY
NEW HOME OFFICE
C.L. PECK

Brandow and Johnston stick to being consultants to architects—

Buildings Are Their Business

John K. Shinn, Chief
Los Angeles News Bureau

There's an impression in some Los Angeles circles that all large buildings in that city are being structurally designed by the firm of Brandow and Johnston.

The impression is incorrect, but it has an imposing foundation. Among the buildings now under construction for which Brandow and Johnston has done the structural engineering: the $9 million, six-story headquarters for Tidewater Oil Company; the $21 million Los Angeles County Courthouse; the $24 million County Administration Building; and the $9 million, 20 story California Bank (first over 13-story building to go up since Los Angeles removed its long-standing height limit).

Altogether there are about $150 million worth of Brandow and Johnston buildings—large and small—now under construction, with an additional $50 million out for bid or on their boards. That puts the office among the top handful in the West.

This adds up to quite a record for a firm that will be only 14 years old this September 1. Opened in 1946, the office had contracted 67 jobs by the end of that year, and has averaged well over 150 jobs a year ever since.

• Success comes easy—The partners—their full names are George E. Brandow and Roy G. Johnston—make their success sound easy. "We started at an ideal time," grins Brandow, "and we just haven't caught up yet."

While it's obviously true that hanging out their shingle at the start of Los Angeles' postwar building boom did them no harm, it's also obvious that timing alone couldn't account for their success.

The other reasons might be summed up like this: top caliber work, single-minded adherence to the role of consultants to architects, and an amazingly felicitous partner relationship.

You can't talk with anyone who knows Brandow and Johnston without hearing a comment on what natural partners they are. As one longtime friend put it: "They fit together like the teeth of a couple of gears."

Both highly competent engineers, they have personalities that complement each other perfectly. Brandow is big, hearty, gregarious. Johnston, though easy enough to talk to, is quieter, more reserved, not so outgoing. These differences made for a natural division of work: Brandow has most responsibility for outside contacts, and Johnston has prime responsibility for administering the internal workings of the office.

• Interchangeable partners—But along with the differences are similarities in thinking about their work that makes them entirely flexible within these broad divisions of responsibility.

They've had clients—more often prospective clients—try to cross them up, by putting the same question separately to one right after the other, before they could possibly consult together. Invariably, their responses have jibed.

They've encouraged their clients to think of them as interchangeable. And they've succeeded, without making an issue of it. Though there are still some architects who from an initial habit regard one or the other as the major contact, the arrangement is never exclusive.

Advantages of such interchangeability are obvious. It means the partnership is always personally available to its clients; and the partners almost never have to break an appointment. If Brandow, has an appointment to meet a client, and is called out of town, Johnston can keep the date without any upset or slowdown in the client relationship.

• First meeting—Though they first met as engineering students at the University of Southern California, the two men didn't know each other very well, and it took them a decade to get together as partners (in spite of the fact that David Wilson, head of SC's Department of Civil Engineering, spotted the logic of a partnership for them while they were still students and suggested as much).

Brandow, born in 1913 in the small Minnesota town of Crookston, migrated to Los Angeles with his family in 1928. After high school, he went to the University of California at Los Angeles for pre-engineering work (and a place on the varsity crew) for 2½ years, then he transferrred to USC to complete upper division work in civil engineering.

He'd been aiming toward some form of civil engineering as far back as gradeschool, and when he graduated from SC in 1936, he had a pretty good idea of the experience he wanted before launching out on his own.

The pattern went like this: building department experience with the Los Angeles County Building Department; construction field supervision, plus design, with Arch Rib Truss Co; structural design for Architect John C. Austin. These jobs took him into 1941, when he became consultant to the City of Los Angeles in charge of structural engineering for the Los Angeles City Airport.

Next, he went with the Los Angeles office of Lummus Company, where he became chief draftsman, involved chiefly with Lummus work on a $50 million refinery program of Union Oil Company of California. This led to his employment by Union Oil, first as a project engineer, and then as acting chief engineer for its Los Angeles refinery.

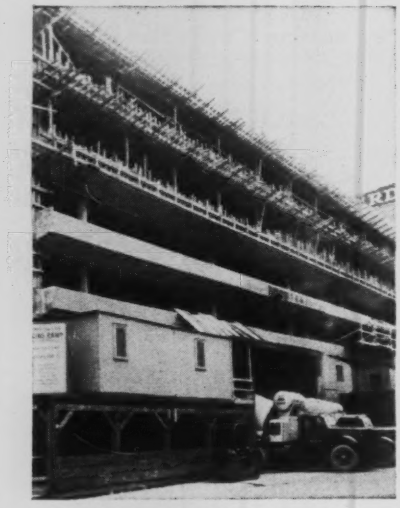
Johnston, who was born in Chicago in 1914, but was transplanted when he

PROBLEM:

Surface & Seal Floors, Ramps, Decks for Automotive Traffic & Parking

ANSWER:

Laykold® ASPHALT SPECIALTIES *Heavy-Duty Mastics*



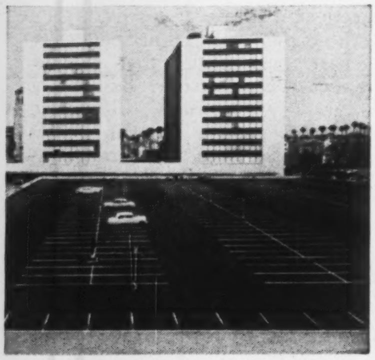
CASE NO. 1:

Rochester, New York; Municipal Parking Ramp—Based on experience, Engineers of the City of Rochester, New York, knew that tire chains and salt used on city streets during winter months would destroy concrete surfaces in their proposed new parking ramp.

After careful study of the problem, the Engineers and their Architects selected Laykold Mastic for surfacing the floors, ramps, and top deck of the new parking "ramp." These surfaces are giving excellent service today; and . . . based on experience with similar installations . . . will continue to perform satisfactorily for years.

CASE NO. 2:

Tishman Building, Los Angeles, California—Surfacing for the parking deck of this privately-financed building became a big factor. After a resin-type coating on the concrete slab proved unsuccessful, Laykold Mastic (plus solvent-resistant Colfix® Jet Seal) was specified. Batched, mixed and screeded into place, Laykold Mastic provides the ideal surface for vehicular traffic and parking.



Whatever the problems: heavy traffic; static loads; fuel or oil drippage; there's a Laykold Mastic Floor specification to meet every requirement.

Laykold Floor Mastic is one of the famous Laykold line of fine asphaltic products for the construction industry. Others are: Laykold Tile Set; Laykold Wood Block Cement; Laykold Fibrecoat; and Laykold Weathercoat. Write for illustrated brochures.

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320 Market St., San Francisco 20, California

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Mobile, Ala.
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St. Louis 17, Mo.
San Juan 23, P. R.
Oakland 1, Calif.
Perth Amboy, N. J.
Cincinnati 38, Ohio
Tucson, Ariz.
Portland 8, Ore.

was 7 to the small farming community of Kingsburg in California's San Joaquin Valley, came by his construction interest naturally—his father was a contractor.

He entered USC on a scholarship—not for engineering but for track and debating. He never went out for track, but "I guess I was the first engineer they ever had on the debating team."

After graduating cum laude with a BS in civil engineering, in 1935, he passed quickly through the Los Angeles County Building Department on his way to a job with structural engineering consultant Clyde Deuel. He stayed there for seven years, and then moved on to Lummus Company in 1942 (becoming Chief Draftsman on Brandow's departure).

By this time he and Brandow had become well acquainted. Both of them were aiming toward their own practice as soon as the war was over, and by 1944, when Brandow left Lummus to go with Union, they had decided to set up a partnership when the time was ripe.

• **First contract**—V-E Day was a signal that the war was coming to a close. Brandow and Johnston got their first contract and hired their first employee in July of 1955, while they were still winding up their respective jobs.

The first project—a $1.3 million Business Administration Building UCLA—was with John C. Austin, the architect for whom Brandow had worked for more than a year, and Johnston had worked for the duration of one job.

It is characteristic of the firm's history that Mr. Austin—the senior partner in the architectural office of Austin Field & Fry—is still a Brandow and Johnston client. His firm uses them almost exclusively, and that's true of most B & J clients.

"We've been fortunate," says Brandow, "in getting connected with top-notch architectural firms, and our growth has been largely a matter of growing along with the architects we serve."

This growth has been largely a result of the partners' conception of their office's function. They're interested in repeat business—not one-shot deals—and they work only for architects (with a very few exceptions in consulting on a specific problem of a property owner).

They do no overall design. "We believe strongly that you can't do both consulting and overall design," says Johnston. "It doesn't make sense to seek work from an architect and also compete with him."

In California, with its earthquake problem, the separate structural engi-

North Ward School

NORTH WARD
SCHOOL

PORTLAND CEMENT ASSOCIATION PHOTOS

For Low Cost Beauty

Architectural Concrete and Concrete Masonry made with Ideal Cement provide a BEST BUY for Schools

An economical dual application of concrete was developed for the construction of the North Ward Elementary School in Superior, Nebraska. On both the inside and outside of this handsome school building, concrete walls were left exposed.

Architectural concrete exterior walls provide an attractive, low-annual-cost exterior treatment for the entire building. On the inside, lightweight concrete masonry walls fulfill a load-bearing as well as a decorative purpose. The interior ceiling was constructed of exposed concrete filler-blocks to provide additional economies when used with the thin concrete roof slab.

This unique school building provides a total of 22,750 sq. ft. of space at a cost of $11.33 per sq. ft.—is an outstanding example of the way architectural concrete and concrete masonry provide beauty, economy, and long life with minimum maintenance. Ideal Cement was used exclusively for all concrete and concrete masonry units in North Ward Elementary School.

PORTLAND IDEAL CEMENT

IDEAL CEMENT COMPANY

DENVER, COLORADO

15 Plants and 4 Terminals Serving
Some of the Most Rapidly Growing Areas of the Nation

TRU-LAY *flexible* PUSH-PULLS
FOR
Remote Control Jobs
on a great variety of
Construction Equipment

Adaptability to all sorts of mechanical situations explains, in large measure, the wide-spread use of TRU-LAY PUSH-PULLS on tractors and their accessories, power shovels, winches, road graders, road oilers, dump trucks, snow plows, engine-driven pumps, rock crushers and other construction equipment.

These dependable Push-Pulls are used for the remote control of hydraulic and air valves, brakes, clutches, transmissions, throttles, chokes, governors, power take-offs, and many other applications.

TRU-LAY PUSH-PULLS are precision products, not gadgets. They provide positive remote-action whether anchorages are fixed or movable . . . for light loads or loads up to 1,000 lbs. . . . and they are effective over short or long distances, up to 150 feet or more.

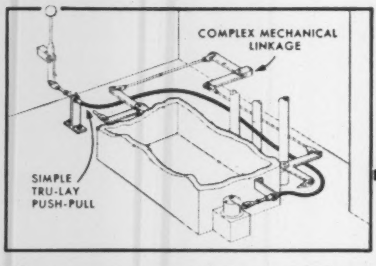
TRU-LAY PUSH-PULLS are dependable and accurate even under the most adverse conditions

They perform effectively under extremes of heat or cold . . . from jet engine temperatures to 70° below zero F. The inner, working member (lubricated for life during assembly) is fully protected by the tough, flexible conduit. Abrasive dusts, dirt and moisture are sealed out. Fittings are cold-swaged to make them integral parts of the control unit. It is a matter of record that we have never heard of a TRU-LAY *flexible* PUSH-PULL wearing out in normal service. Use of these versatile, simple and rugged controls increases ease of operation and means the virtual elimination of maintenance.

Advantages of Tru-Lay Push-Pull flexibility and simplicity are pictured below

Simplicity vs Complexity

Compare the TRU-LAY PUSH-PULL cable in illustration with the mechanical linkage. PUSH-PULLS are simple, have but one moving part, are noiseless and give lifetime service accuracy. Linkages are complex, made of many parts; they wear at many points. Their use brings increased backlash, lost accuracy and vibration rattles.



"Solid as a rod but flexible as a wire rope" is a good description of TRU-LAY PUSH-PULL REMOTE CONTROLS. This flexibility makes it possible to snake around obstructions . . . permits the ideal arrangement of all control elements . . . greatly simplifies installation of controls by reducing the number of working parts . . . damps out noise and vibration. Versatile, accurate, adaptable, rugged . . . they are the ideal remote controls for construction equipment.

*Our **DATA FILE** will answer your further questions*
Write for a copy without obligation

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TRADE MARK

neering office is the rule rather than the exception. But undoubtedly, the firmness with which Brandow and Johnston have stuck to their consulting helps to explain their popularity with architects.

• **Complete follow-through**—The primary element in their service, of course, is good engineering, and they both have formidable reputations as engineers, but their conception goes a long way beyond good basic design.

It includes turning out plans that are genuinely "complete enough to build by." The partners are determined not to be guilty of furnishing plans that need guesswork, interpretation, an explanation during construction.

And it includes follow-through. As Brandow puts it: "We don't wash our hands of a job when it gets in the field."

Either Brandow or Johnston follows a job all the way to the end, consulting with contractors and subcontractors, personally assuring themselves that the work is being done properly.

Said a top official of the Los Angeles Department of Building and Safety: "They have the reputation of being outstanding detailists on supervision in the field. And that pays off. You can be the best designer in the world, but if the stuff doesn't get put together right it isn't worth much."

Brandow and Johnston have a highly competent office. Of the 30 men in it, there are four other structurals, plus eight more with civil licenses. Only six of the men in the office are not graduate engineers. But the partners' personal touch is on every job.

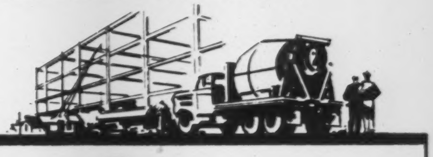
Either Brandow or Johnston—or both of them—work with the architect in the early stages of a project. By the time a job reaches their office, it's well into preliminaries.

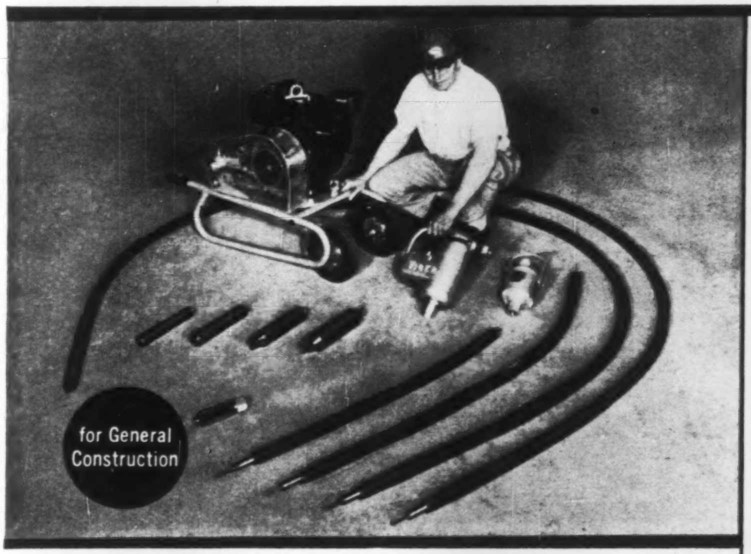
The partners themselves follow the office work through every stage and they personally do the field follow-up work.

Brandow and Johnston don't consider themselves design pioneers. "Good design," say Brandow "is a matter of many people slowly adding to knowledge."

• **New ideas**—But that doesn't mean they're adverse to trying out new techniques. Said architect Adrian Wilson: "Maybe the chief thing we like about them is their open mindedness on new ideas. You present a new concept to some structurals and they'll come back with, 'Hell, you can't do that.' Brandow and Johnston react with 'That looks interesting. Let's have a go at it

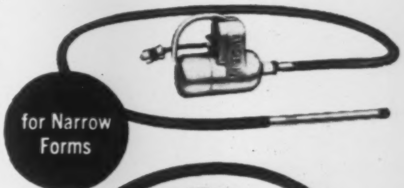
Only Viber makes a complete line of *Concrete Vibrators* for Contractors!





for Pre-stressed Concrete

for Laboratory or Field



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for Mass Concrete

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Installing riveted steel pipe in 1925 near St. Louis' Stacy Park Reservoir.

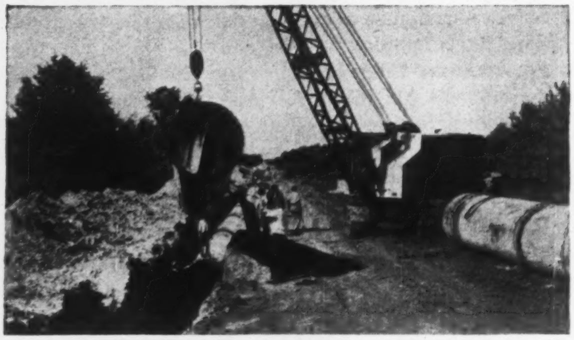
Big steel mains still going strong in St. Louis

How long will large-diameter steel mains give satisfactory service? Let's look at an example in the city of St. Louis, where many miles of steel pipe have been installed.

Back in the mid-twenties the city developed a badly needed second source of water, at Howard Bend on the Missouri River. The project included installation of a 60-in. ID riveted steel main, nine miles from the filters to a new reservoir at Stacy Park, and eight miles further to the city mains. This line was completed in 1926.

When more transmission capacity was required, the city installed thirteen miles of welded steel pipe, again mostly 60 in. ID. This pipe was coal-tar lined by the spinning method, and coated. It was supplied by Bethlehem Steel in 40-ft lengths, and joined in the field by mechanical couplings. Tests made in 1935 indicated the leakage to be less than a gallon per diameter-inch per mile of pipe in 24 hours.

After more than 30 years of continuous service for much of this pipe, and well over 20 years for the rest, the Water Department reports that it has given uniformly satisfactory service with every indication of continuing to serve well for many years to come.



Laying 40-ft lengths of 60-in.-ID steel pipe in St. Louis in 1934. Note the smooth, shiny coal-tar lining.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

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STEEL

and see if it can be done.' This is important in a time that tends to put a premium on doing things a little differently."

The office did the structural design on the first all-welded office building in the Los Angeles area (the 13 story Superior Oil headquarters), the first lift-slab job (and one of the heaviest), the first major steel-decking job.

The partners also have the reputation of a healthy regard for economics. More than once they've been called in for redesign work to bring a project down to budget.

Although Brandow and Johnston have a reputation for handling large buildings, they emphatically deny they're interested in large work exclusively.

"We've done some big ones," says Johnston, "but we've also done a lot of schools, churches, small stores, small office buildings."

As an example, for Architect Milton L. Anderson, alone, they have done structural design for over 400 J. C. Penny and similar stores.

"You can't maintain an office with just big work, or with just small work. It takes both kinds."

Their professional interests have drawn the partners heavily into association work.

Brandow has been president of the Los Angeles Section, ASCE; chairman of National Executive Committee, Structural Division, ASCE; director of Structural Engineers Association of Southern California; secretary-treasurer, Consulting Engineers Association of Southern California.

Johnston is on the seismic code committees of the Structural Engineers Association of Southern California and of the state association. He has been a director of the Structural Engineers Association of Southern California.

The partners are pretty well content with the size of their office as it is now. It's about as large as the two of them can manage—and they're not interested in taking in new partners. In the past, when men in the office have reached the point where talent and ambition made a partnership the logical next step, they've been encouraged to go out on their own. There are several structural offices in Los Angeles that have branched off from Brandow and Johnston, and there will undoubtedly be more.

But, wherever they draw the line in size, the thinking was probably more wishful (and temporary) than accurate when Brandow said recently, "We think we'll kind of get caught up this summer and be able to relax for a change."

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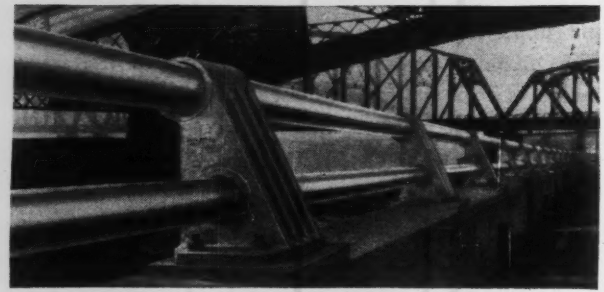
Complete engineering assistance on aluminum bridge structures, railings, highway signs, lighting standards, gratings, overhead sign structures, chain link fencing and other highway applications is available at your nearest Alcoa sales office. Or write: Aluminum Company of America, 1974-C Alcoa Building, Pittsburgh 19, Pennsylvania.



Engineers: Michael Baker Co.; George S. Richardson.

General Contractor: Adam Eidemiller; Booth & Flinn Co.; Eichleay Corp.; Ft. Pitt Bridge Co.; American Bridge Co.

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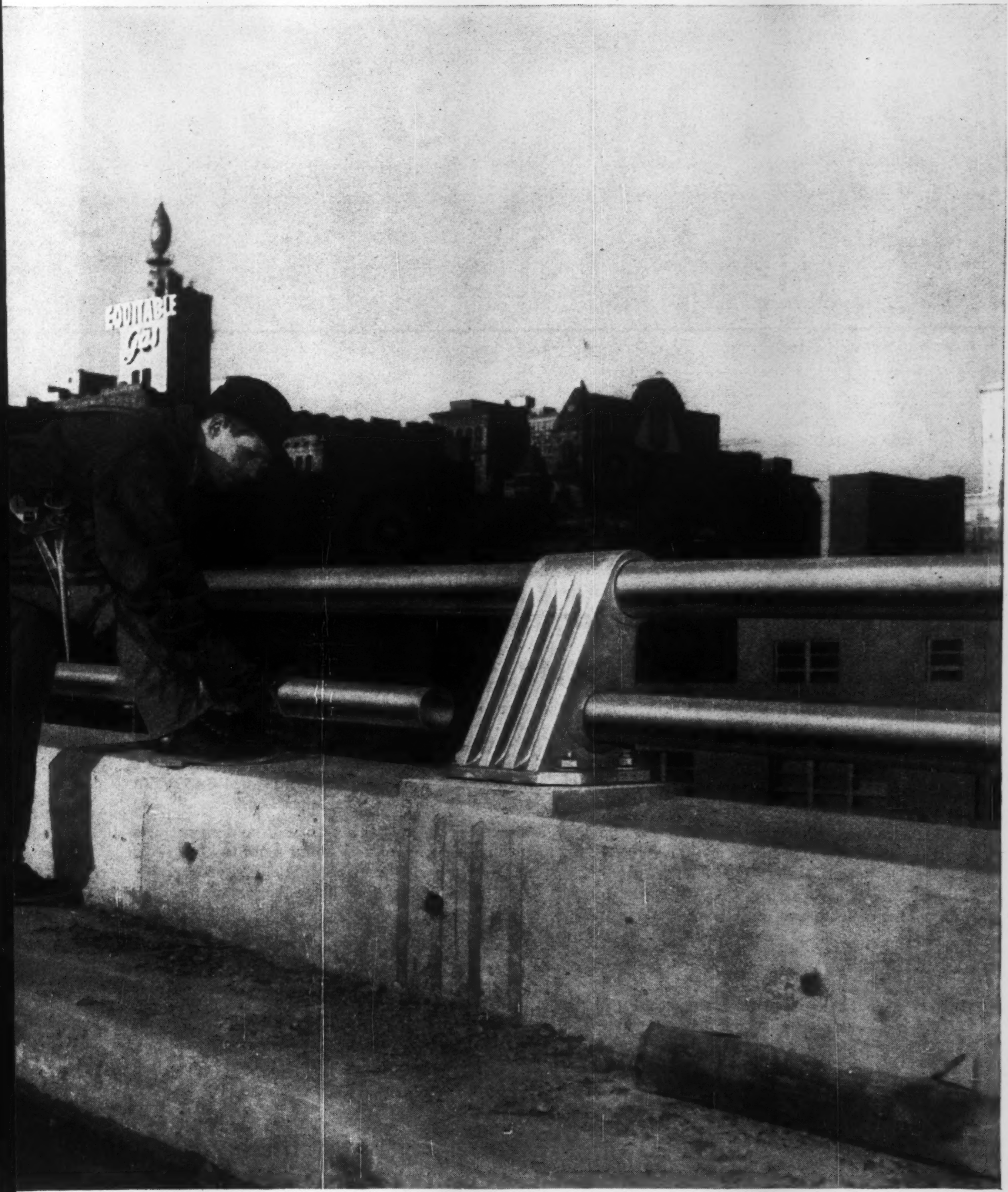
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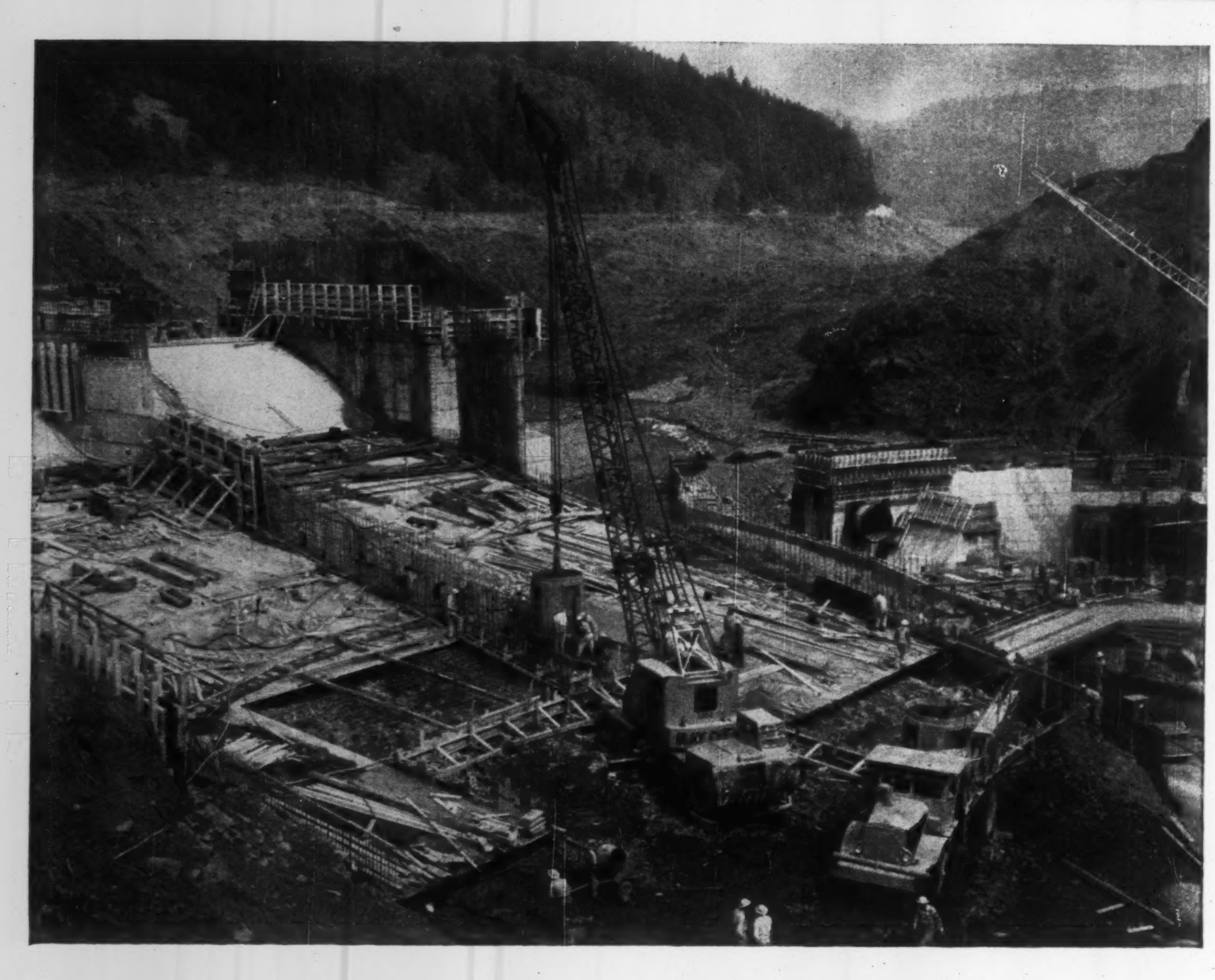

How Guy F. Atkinson Company places 40 yards of concrete per hour with BAY CITY CRANEMOBILE®

On the north fork of the Clackamas River near Estacada, Ore., Guy F. Atkinson Company is constructing a hydroelectric dam for the Portland General Electric Company of Portland, Oregon.

The dam, a thin-arch type 185 feet high, contains approximately 68,000 cubic yards of concrete. For the immense job of concrete placement, Atkinson is using a 25-ton capacity BAY CITY CraneMobile with a 75-foot boom and jib. Lifting a full two-yard bucket . . . placing the concrete . . . and returning the empty bucket to a waiting truck at the rate of one bucket every 3 minutes . . . this rugged BAY CITY averages 40 yards of concrete an hour.

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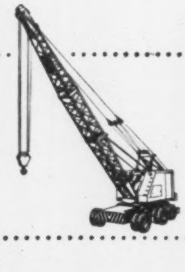

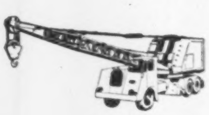

Pennsylvania Sewer Job Awarded on Alternates

Five contracts total $1,800,646 for three sanitary sewers and three pumping stations in Harrisburg, Dauphin County, Pa., for the Lower Paxton Township Authority. This is 4.4% above the engineer's estimate. Glace & Glace, Harrisburg, are the consultants.

Alternate bids on Contract I substituted 21 in. vitrified clay pipe with special joint for a portion of the 8 in. pipe in the base bid. Additional bids were submitted on shoring left in place, an additional force main, and several minor items.

Alternate bids were submitted also on Contract III. These substituted 21 in. and 24 in. virtified clay pipe, with special joints, for a portion of the 8, 10, 12 and 15 in. pipe in the base bids; 10 Y branches were deducted, and additional excavation and crushed stone were included, with shoring in place.

The awards were on the alternates, in both instances.

Bids: 7-18-57 Items	Unit	Contract I Quantity Base Bid	Contract I Quantity Alt.	Contract I Unit Price 1C	Contract II Quantity	Contract II Unit Price 1C	Contract III Quantity Base Bid	Contract III Quantity Alt.	Contract III Unit Price 1C
VCP, 8", depth 0'-6'	lf	16,644	16,134	$4.70	24,423	$4.42	33,600	32,485	$4.62
6'-8'	lf	12,130	11,812	5.80	15,142	4.67	24,865	24,482	4.87
8'-10'	lf	4,850	4,850	6.90	3,364	6.17	4,150	3,835	6.37
10'-12'	lf	1,010	1,010	8.60	435	8.67	1,400	1,400	8.87
10'-12'	lf	4,000ES	4,000ES	9.00	300ES	8.97	800ES	800ES	9.17
over 12'	lf	912ES	912ES	13.25	1,173ES	11.47	580ES	580ES	11.67
sp jt or 8" Cl 1AC,									
depth 0'-6'	lf	2,815	2,815	5.40	3,032	4.82	6,460	5,647	5.02
6'-8'	lf	1,371	1,371	6.25	2,761	5.07	4,455	4,290	5.27
8'-10'	lf	675	675	7.05	757	6.57	610	590	6.77
10'-12'	lf	40	40	8.55	56	9.07	40	30	9.27
sp jt or 8" Cl 2AC									
depth 10'-12'	lf	40ES	40ES	9.15	50ES	9.37	40ES	40ES	9.57
over 12'	lf	45ES	45ES	13.15	47ES	11.87	90ES	90ES	12.07
10" sp jt or 10" Cl 1AC									
depth 0'-6'	lf	2,810	2,810	5.90	965	5.41	270	....	5.71
6'-8'	lf	750	750	6.70	525	5.66	150	....	5.96
8'-10'	lf	585	585	7.60	40	7.16	40	....	7.46
10'-12'	lf	75	75	9.05	40	9.66	40	....	9.96
sp jt or 10" Cl 2AC,									
depth 10'-12'	lf	50ES	50ES	9.40	40ES	10.14	40ES	....	10.44
over 12'	lf	50ES	50ES	13.40	70ES	12.64	40ES	....	12.94
12" sp jt or 12" CL 1AC									
0'-6'	lf	....	....	......	....	......	5,910	2,571	6.30
6'-8'	lf	....	....	......	....	......	4,410	3,109	6.55
8'-10'	lf	....	....	......	....	......	500	385	8.05
10'-12'	lf	....	....	......	....	......	415	415	10.65
12" C1 2AC									
10'-12'	lf	....	....	......	....	......	170ES	170ES	11.45
over 12'	lf	....	....	......	....	......	50ES	50ES	13.85
15" sp jt or 14" Cl 1AC									
0'-6'	lf	....	....	......	....	......	4,370	3,465	7.50
6'-8'	lf	....	....	......	....	......	1,350	1,350	7.75
8'-10'	lf	....	....	......	....	......	40	40	9.25
10'-12'	lf	....	....	......	....	......	40	40	11.85
15" sp jt or 14" Cl 2AC									
10'-12'	lf	....	....	......	....	......	40ES	40ES	13.31
over 12'	lf	....	....	......	....	......	40ES	40ES	15.71
21" sp jt or 20" Cl 1AC									
0'-6'	lf	....	510	9.80	....	......	....	5,539	10.10
6'-8'	lf	....	318	11.05	....	......	....	1,999	10.10
8'-10'	lf	....	....	......	....	......	....	490	12.10
21" sp jt or 20" Cl 2AC									
over 12'	lf	....	....	......	....	......	....	40ES	17.60
24" sp jt or 24" Cl 1AC									
0'-6'	lf	....	....	......	....	......	....	905	11.95
Y branches 8"x6"	ea	360	360	5.35	585	4.50	1,010	1,010	4.50
or Cl 6" saddle, 8"x6"	ea	10	10	11.70	10	10.00	20	20	10.00
10"x6"	ea	5	5	14.20	5	15.00	10	....	15.00
12"x6"	ea	....	....	......	....	......	5	5	18.00
15"x6"	ea	....	....	......	....	......	5	5	20.00
VC std house conn, 6",									
horizontal	lf	6,660	6,660	3.95	10,500	3.70	18,000	18,000	3.70
vertical	vf	60	60	4.40	75	7.50	100	100	7.50
MH stubs, 6"φ	ea	10	10	2.50	7	2.00	5	5	2.00
Conn to exist MH	ea	1	1	37.70	2	100.00	1	1	100.00
Force main conn to new MH	ea	1	2	62.80	....	......	2	2	100.00
MH, type A	vf	940	940	28.90	900	25.00	1,550	1,550	25.00
B	vf	360	360	32.05	630	22.00	970	970	22.00
frame and cover	ea	185	....	40.20	225	45.00	315	315	45.00
Drop connection — type I	vf	40	40	9.15	20	20.00	85	85	20.00
II	vf	50	50	12.50	85	20.00	120	120	20.00
III	vf	15	15	4.40	45	20.00	35	35	20.00
Lamphole	vf	60	60	3.80	80	10.00	40	40	10.00
frame and cover	ea	10	10	23.55	15	12.00	10	10	12.00
Repaving, temporary	sy	1,580	1,580	1.90	....	......	2,600	2,600	2.60
Resurfacing, perm, state hwys..	sy	1,580	1,580	3.15	....	......	2,600	2,600	1.70
other than state hwys	sy	8,600	8,600	1.65	16,100	2.10	18,100	18,100	2.10
Restore sidewalk	sy	50	50	6.30	50	5.40	50	50	5.40
curb	lf	100	100	3.15	100	2.50	100	100	2.50
Stone, crushed	cy	300	....	5.50	200	9.00	700	700	7.00
	cy	....	....	......	....	......	....	25	9.00
Exc, rock	cy	6,000	6,000	1.25	7,500	8.00	12,000	12,452	7.00
Conc, mass	cy	150	150	28.30	175	30.00	285	285	30.00
Pipe, Cl 150 AC (ring tite) 6"	lf	1,320	1,320	3.20	....	......	....	....	......
8"	lf	....	....	......	....	......	4,420	4,420	5.20
Hwy xing	ls	job	job	8,430	....	......	....	....	......
8" in tunnel, to 21"	ls	job	job	15.00	....	......	....	....	......
Shoring left in place	bf	....	5,000	0.20	....	......	....	7,000	0.12
Conc masonry unit MH, deduct for	vf	....	....	......	900	3.00	1,550	1,550	3.00

Completion schedule: 365 days   Liquidated damages: $50/day

vf vertical ft   ES extra strength

Contractor and Job	Amoun	% of Total
C&T Affiliates, Collingswood, N. J.		
Alternate Contract I (Sewer)	$396,265	22.00
Alconn Utilities, Verona, N. J.		
Contract II (Sewer)	456,190	25.34
Alternate Contract III (Sewer)	878,221	48.77
Reisinger Bros.q Inc., Carlisle, Pa.		
Contract IV—3 Sewage Pumping Stations	62,050	3.45
Edwin L. Heim Co., Harrisburg, Pa.		
Electrical Work for Pumping Stations	7,920	0.44

Class A concrete is specified to test at 3000 psi. Specifications for cast iron pipes call for ASA 21.6 or 21.8, Class 22, or ASA 21.11, mechanical joint.

The contractors furnish all materials.

		Bids Base	Bids Alternate
Sewer Contract I			
1	Alconn Utilities, Inc., Verona, NJ	$388,215	
1C	C&T Affiliates, Collingswood, NJ		$396,265
2	C&T Affiliates, Collingswood, NJ	389,432	
2	Alconn Utilities, Inc., Verona, NJ		396,285
7	M. J. Bless, McLean, Va	459,483	471,246
Sewer Contract II			
1C	Alconn Utilities, Inc., Verona, NJ	$456,190	none
2	R. E. Wolfe, Harrisburg, Pa	468,900	none
5	Berlanti Constr Co., Harrison, NY	528,387	none
Sewer Contract III			
1	Globe Contr Co., Upper Darby, Pa	$816,987	
1C	Alconn Constr. Co., Verona, NJ		$878,221
2	Alconn Constr. Co., Verona, NJ	835,496	
2	Globe Constr. Co., Upper Darby, Pa		881,279
8	Ben Constr. Co., Pittsburgh, Pa.	1 246,903	1,312,905

3 Sewage Pumping Stations—Contract IV

		Lump Sum
1C	Reisinger Bros., Inc., Carlisle, Pa	$62,050
2	Rice & Weidman, Inc	64,600
3	Moseman Constr. Co., Inc., Harrisburgh	80,250

Electrical Work for Pumping Stations—Contract V

		Lump Sum
1C	Edwin L. Heim Co., Harrisburgh, Pa	$7,920
2	The Howard P. Foley Co., Harrisburg	8,100
3	General Electrical Service Co., Harrisburg, Pa.	8,296

Escanaba, Michigan Grades, Paves and Turfs Airport

The compacted crushed aggregate base course at $4.50 a cu yd and the bituminous base course at $10 a ton, account for over 62½% of this $144,010 grading, paving and turfing job at the Escanaba Municipal Airport, Mich.

Thornton Construction Co., Hancock, Mich, underbid the high bidder out of seven by 15%, and he was 11% below the estimate of the Michigan Department of Aeronautics.

Minimum wages include: Tractor operators, $2.945; roller operators, $3.045; truck drivers, $2.36; common labor, $1.895.

1C	Thornton Const. Co., Hancock, Mich	$144,010
2	Koshak Bros, Park Falls, Wis	149,789
7	Alpine Constr. Co., St Ignace, Mich	169,468
EE	Engr. Dept., Mich. Dept. of Aeronautics	161,862

Bids: 10-2-57 Items	Unit	Quantity	Unit Prices 1C	Unit Prices 2
Clear woods, Area A	ls	job	$500.00	$400.00
& grub, B	ls	job	1,000	700.00
Excavation, unclassified	cy	63,210	0.45	0.55
mucky sand	cy	4,500	0.50	0.55
Subbase crse, compacted	cy	4,176	3.00	2.15
Base crse, cr agg (comptd)	cy	10,045	4.50	5.00
Bit surf crse, agg (comptd)	t	4,495	10.00	9.60
prime coat (MC-1)	gal	17,700	0.25	0.23
Elec duct, undergr, 3", 2 bk, type I	lf	212	5.00	4.75
Turfing	ac	36.5	100.00	110.00

Materials and Labor Prices

Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, Feb. 20; Next, Mar. 20
- Clay Products Lime, Plaster, Paint, Roofing: Last, Feb. 27; Next, Mar. 27
- Wage Rates, Building Board, Lath, Insulation: Last, Feb. 27; Next, Mar. 27
- Cement, Aggregate, Ready-Mixed Concrete, Asphalt: Last, Mar. 6; Next, Apr. 3

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS* billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$5.275	$5.10	$5.425	$12.25	......	$110.50	$130.00	$6.975	$9.75	$6.60	......
Chicago Area	5.275	5.10	5.425	12.25	$6.225	110.50	130.00	6.975	9.75	6.60	......
Pittsburgh Area	5.275	5.10	5.425	12.25	6.225	110.50	130.00	6.975	9.75	6.60	$14.75
Buffalo Area	5.275	5.10	5.425	12.25	6.225	110.50	130.00	6.975	9.75	6.60	14.75
Cleveland	......	......	5.425	12.25	6.225	......	......	......	......	......	14.75
Youngstown Area	......	......	5.425	......	......	......	......	......	9.75	......	......
Geneva	5.275	5.10	......	......	......	......	......	......	......	......	......
Los Angeles	5.975	......	6.125	......	6.225	......	......	......	9.75	6.75	......
Pueblo	......	......	......	......	......	......	......	69.75	9.75	6.60	......

* Fairless Works, $5.575.

IRON AND STEEL PRODUCTS—F.O.B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	REINFORCING BARS Rail steel	EXPANDED METAL LATH‡ Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	EXPANDED METAL LATH‡ Std. ribbed 3.4 lb.
Atlanta	$9.05	9.25	$9.01t	$52.00	$57.00
Baltimore	9.45	8.45j	....	42.00	46.50
Birmingham	8.64y	8.60y	8.60y	57.00p	63.00p
Boston	9.63a	8.25	8.25	46.50	51.00
Chicago	8.79E	6.91gu	6.91gu	52.00‡	53.00‡
Cincinnati	9.18ak	9.08rs	....	43.50mn	48.00mn
Cleveland	9.01	6.89c	....	44.50‡	49.00‡
Dallas	10.25	8.50	8.50	44.00	48.50
Denver	9.90	8.95c	....	57.00n	63.00n
Detroit	9.18	7.15g	....	45.00	49.50
Kansas City	9.31a	8.10	....	49.00	60.00
Los Angeles	8.85fd	7.35	....	57.00	63.00
Minneapolis	9.08d	9.26b	9.26b	42.50	46.00
Montreal	8.70-9.00iC/8.30-9.40A	7.00/7.50FG	7.00/7.50FG	65.70h	70.20h
New Orleans	....	8.00gks	....	45.50	50.00
New York	9.45‡s	8.35y	8.35y	50.50n	57.00no
Philadelphia	8.80/9.00	7.80/8.00	....	42.50‡	47.00‡
Pittsburgh	8.64y	7.10y	....	46.00‡w	49.50‡w
St. Louis	9.10s	8.45c	8.45c	61.00l	62.00l
San Francisco	9.50	9.45j	....	51.00	55.00
Seattle	9.80sD	8.85e	....	63.50nr	68.00nr
Toronto	8.85*	7.85	7.85	61.60nq	66.00nq

Quantity extras, per cwt: under 100#, +$9; 100–399#, +$6; 400–999#, +3.50; 1000–1999#, +1.00; 2000–4999#, base price; 5000–9999#, −10¢; 10,000–19,999#, −30¢; 20,000–29,999#, −50¢; 30,000# and up, −70¢

EXTRAS, per cwt—♦Quantity (applies to LCL shipments only): under 1,000#, +$1.80; 1000–1999#, +$1.50; 2000–4999#, +$1.20; 5000–9999#, +90¢; 10,000–19,999#, +60¢; 20,000–29,999#, +30¢; 30,000–39,999#, +10¢; 40,000# & up, none. ♦Size†: #2 +$2.50; #3 +$1.40; #4 +$1.00; #5 +70¢; #6, #7, #8, #9, #10, #11 +50¢. ♦Bending: heavy, +90¢; light +$2.20 (except in New York City and surrounding metropolitan area where bending must be done on the job). ♦Engineering (details and placing from designs by others): over 500 tons, +45¢; 200–499 tons, +50¢ but not over $4500; 75–199 tons, +65¢ but not over $2000; 20–74 tons, +75¢ but not over $975; 5–19 tons, +85¢ but not over $300; under 5 tons, +$1.00 but not over $85. Min. charge $25. Design only: +60¢.

WELDED FABRIC REINFORCING
Per 100 sq ft., carload lots fob mill

4 × 16 in., No. 6 & 10 wires—
Joliet, Ill., Donora, Pa., Monessen, Pa.........$3.98

4 × 12 in., No. 8 & 12 wires—
Joliet, Ill., Donora, Pa., Monessen, Pa.........$2.62

6 × 6 in., No. 6 & 6 wires—
Joliet, Ill., Donora, Pa., Monessen, Pa.........$4.17

•‡ Delivered. •* Aver. of Canadian & American. •a 2000–9999# •b 10,000–15,999#, fob city •c 20 tons or over •d 10,000–19,999# •e Intermediate struct'l •f Incl. delivering in free zone •g CL •h list price; dominion tax exempt; add provincial and municipal taxes •i add dominion, provincial and municipal sales taxes •j intermediate and hard grade •k fob city •l delivered; contractor to do unloading •m copper alloy •n LCL •o asphalt coated •p del. of 500 sq. yd. or more. •q 3 lb •r 2% off for cash •s 2,000–4,999# •t add 16.5¢ del. •u add 7.5¢ switch •v incl 15¢ del. •w truck lots. •y add 15¢ del. •z add 10¢ del. •A American made. •C Canadian made. •D ½% for cash. •E 30,000# or over. • F Federal tax exempt. •G add 10¢ switch.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEXa	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 6" Press Cl. 150	ASBESTOS CEMENT PIPE 12" Sew Cl. I	ASBESTOS CEMENT PIPE 12" Sew Cl. 2400	CLAY SEWER PIPE Per ft., delivered ASTM C13-54 8 in.	CLAY SEWER PIPE ASTM C13-54 12 in.	CLAY SEWER PIPE ASTM C200-55T 24 in.	CLAY SEWER PIPE ASTM C200-55T 36 in.	CLAY DRAIN TILE† Per 1,000 ft., car load lots, f.o.b. ASTM C4-55 6 in.	CLAY DRAIN TILE† 8 in.	CONCRETE SEWER PIPE§ Per ft., delivered ASTMC 14-55 12 in.	CONCRETE SEWER PIPE§ 24 in.
Atlanta	130.5	$1.56/1.64	$2.55	2.68	$ .53	$ .98	$	$....	$209.00s	$334.00	$1.55m	$4.40m
Baltimore	140.4	1.56/1.64	2.35	2.54	.665	1.28	5.08r	12.71	187.80	289.20	1.01	2.75m
Birmingham	125.8	1.56/1.64	2.55	2.62	.46	.86	3.70w	10.37w	260.00‡	440.00‡	1.25m	2.75
Boston	143.5	1.58/1.66	2.35	2.54	.763qrt	1.4715qrt	6.075qrt	....	215.40r	330.60r	1.56mg	3.47mg
Chicago	140.9	1.56/1.64	2.35	2.54	.93m	1.78m	7.52m	21.16m	220.00n	330.00n	1.30	4.00
Cincinnati	135.5	1.58/1.66	2.43	2.54	.665t	1.2825t	4.905t	12.505	240.00	370.00	.85m	3.25m
Cleveland	141.7	1.58/1.66	2.43	2.54	.567s	1.0935s	4.545t	11.7875t	155.40m	240.60m	.85m	3.50m
Dallas	137.8	1.58/1.66	2.67	2.62	.537	.955	4.382b	9.72b	......	......	1.04	2.10
Denver	148.2	1.79/1.73	2.67	2.68	.48n	.87n	3.73n		......	......	.75m	2.75m
Detroit	142.1	1.58/1.66	2.43	2.54	.90n	1.70n	6.80n	18.50n	164.80m	254.20m	1.10	4.05
Kansas City	138.5	1.60/1.66	2.43	2.62	.61	1.105	5.214b	11.08	275.00	485.00	.95	2.90
Los Angeles	148.6	1.65/1.73	2.35	2.54	.74bl	1.61bl	6.42bl	15.36bl	370.00l	530.00l	1.12	3.32f
Minneapolis	149.9	1.60/1.68	2.55	2.62	.86mo	1.55mo	6.70mo	....	......	......	2.13h	5.74h
Montreal	....	....	....	....	1.13u	2.00u	7.50u	13.50u	288.00	545.00	1.17h	3.11j
New Orleans	133.3	1.56/1.64	2.55	2.62	.528	.983	5.10	.....	210.50p	468.00	.85	2.90
New York	138.7	1.58/1.66	2.35	2.54	1.02	1.94	7.56	19.48	......	......	1.50	3.00
Philadelphia	138.0	1.56/1.64	2.35	2.54	.68	1.31	5.13r	14.25r	300.00‡	350.00‡	1.75h	4.20h
Pittsburgh	142.9	1.58/1.66	2.35	2.54	.595m	1.15m	4.73m	12.40m	190.00	295.00	1.66x	3.93x
St. Louis	136.9	1.56/1.64	2.43	2.62	.59	1.08	4.45	10.80	180.00l	380.00l	1.45il	3.10hl
San Francisco	148.6	1.65/1.73	2.35	2.54	.78d	1.69d	6.72d	16.36d	320.00l	560.00l	1.05m	3.30m
Seattle	149.0	1.65/1.73	2.35	2.54	.67b	1.33b	6.84	.....	220.00c	......	1.95ky	4.75ky
Toronto	.....	....	....	....	.80	1.50	6.00	.....	157.00	280.00	1.02	3.57

***WROUGHT STEEL PIPE**
(Full standard weight)
Discount from list; see footnote

Mill	2½ & 3 in., Butt Weld+ Black %	2½ & 3 in., Butt Weld+ Galv. %	3½ to 6 in., Lap Weld+ Black %	3½ to 6 in., Lap Weld+ Galv. %
Lorain, Ohio	16.75	0.50	....	....
Aliquippa, Pa	16.75	3.00	6.25a	+8.00a
Sparrows Pt., Md.	14.75	1.50	.......†	.......†
Benwood, W. Va.	16.75	0.50	....	....
Youngstown, O.	16.75	0.50	6.25	+10.50a
Indiana Harbor, Ind.	15.75	0.50	5.25ab	+11.50a
Sharon, Pa.	16.75	0.50	....	....
Wheatland, Pa	16.75	0.50	6.25a	+10.50a
Etna, Pa	16.75	3.00	4.50d	+9.75d
Fontana, Calif.	3.25	+13.00	+7.25ab	+24.00ab

+Threaded and coupled. a 3½ to 4 in. b Continuous weld. 5 and 6 in. d 6 in. † Production discontinued

•† Extra quality •‡ delivered. •a PRICE INDEXES for CENTRIFUGAL CAST IRON PIPE (Include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE $ PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes Birmingham, Ala., 125.8; Burlington, N. J., 134.6. •b Extra strength. •c 4-in., $130. •d SS361-A •f 21 in. •g culvert pipe; reinf., ASTM C 75–56 •h reinf., ASTM C 75–54 •i reinf., ASTM C 76–55 •j centrispun; no standard specs. in Canada. •k 2% cash •l fob plant •m truck del. •n LCL del., fob truck •o listed price based on LCL (no min.) •p freight allowed to destination in city •q ASTM C 13-40 •r CL fob origin, freight allowed •s 1 ft lengths •t 3 ft lengths •u CESA A 60-1941 •v standard strength •w SS; add 20% for d.s. •x fob city •y Reinforced

• WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft.(*based on approx. $200 per net ton): Butt Weld ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. Lap Weld 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight, 3% transport tax for destination price. † Production discontinued November 1957

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: Butt Weld—1 in. black, + 65.54, galv. + 95.77; 1¼ in. black, + 65.54, galv. + 95.23, 1½ in. black, + 61.79 galv. + 91.22; Lap Weld —2½ in. to 3 in. black + 67.95 galv. + 95.77; 4½ in. to 6 in. black + 64.74 galv. + 90.68 Add freight rates plus 3% transportation tax to get destination price.

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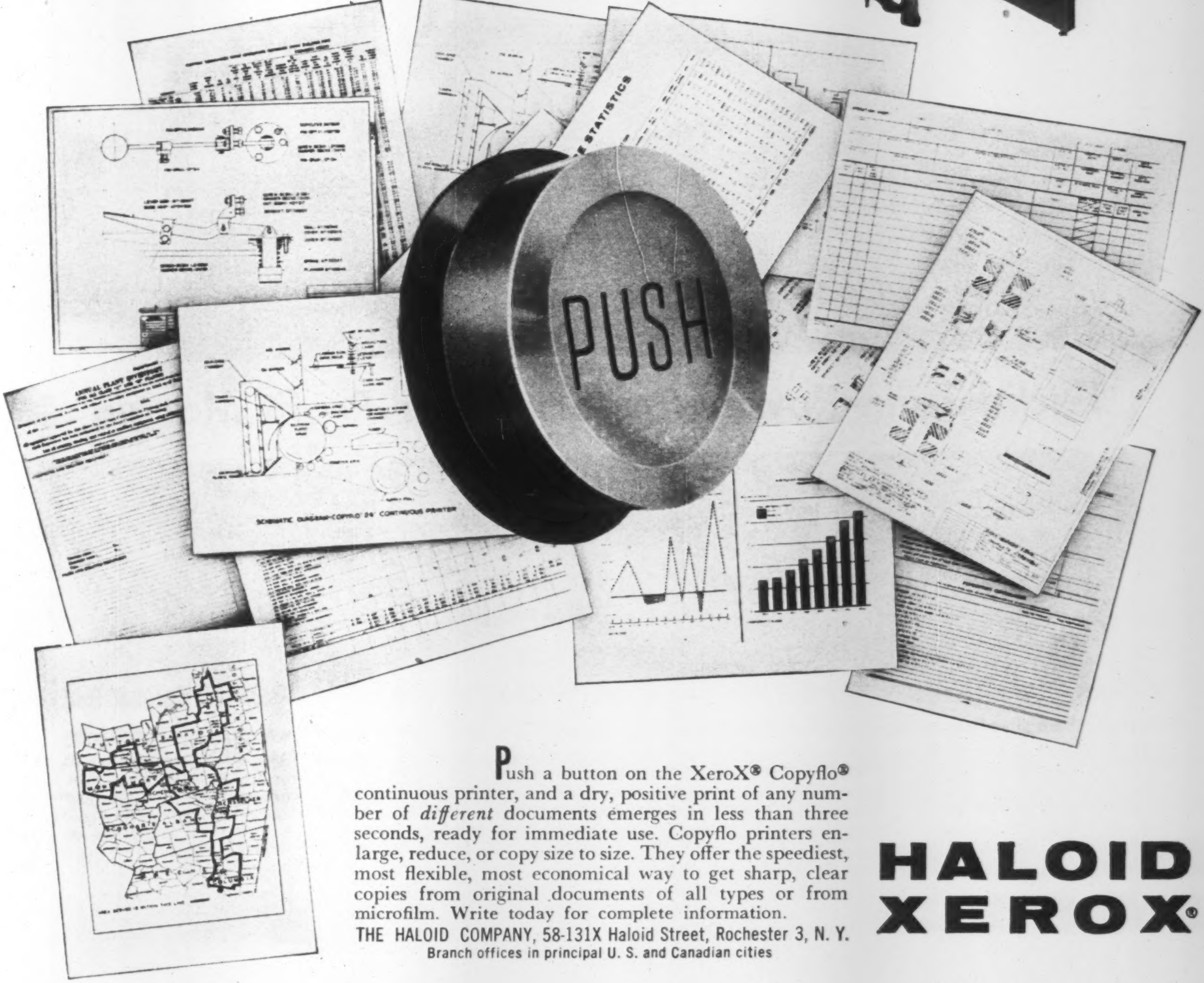
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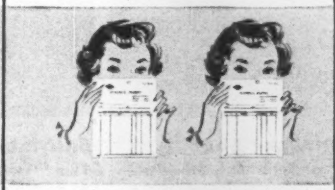

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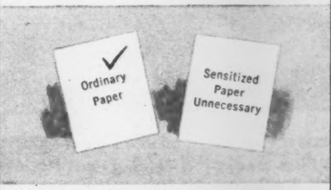
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Euclid Twin-Power Protects Your Profit Margin

21% faster than single engine units

In loading ripped and shot rock for the 1,300,000 yd. U. S. Highway job at Meacham, Oregon, two "Twins" saved better than 6 cents a yard over single engine rigs for Rogers Construction Co.

"Couldn't be done with scrapers"

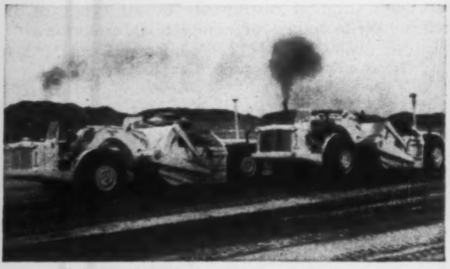
In Delaware, Barney Zinick tackled a million yard riverbank stabilization and bridge approach project with 5 Euclid "Twins"—moved 4000 yds. per shift over a 3000' haul—although the Corps of Engineers figured it would be a dragline job.

Handles complete road job

The first rubber-tired scraper for R. L. Eatherly Construction Co. of Nashville was a Euclid "Twin". In 4 weeks this one rig handled all earthmoving, grading and surfacing (50,000 yds.) for a state road connecting U. S. 70 with Oak Ridge.

Only "Twins" could operate

Heavy rain did not stop "Twins" from loading clay and sand for L. W. Edison's 2 million yard expressway project at Grand Rapids, Michigan. This contractor rates the "Twin" as the most efficient scraper available today.



Averaged 350 yds. per hour

Bidding on "Twin" performance, N. A. Degerstrom beat 23 contractors and wet weather . . . moved 14,500 yds. in 31 working hours on one section of the 900,000 yd. job near Davenport, Washington.

Self-load at 10,000 ft. elevation

Two "Twins" are stripping overburden at J. R. Simplot Company's phosphate mines in Idaho. They self-load, climb 50-60% adverse grades on the return, and move as much as 300 pay yards per 50 minute hour.

are moving the cheapest dirt!

"EUC" TS-24 outperforms any other scraper

Combine two engines (300 h.p. in front and 218 in back), two synchronized Torqmatic Drives, all wheel drive, and job-proved Euclid hydraulic scraper operation with 24 yd. struck capacity and you have the most productive scraper in the field today . . . the TS-24 Euclid "Twin".

Many other design features like 4-section cutting blade, extra-strength construction, easy-loading bowl design, planetary drive axles, NoSpin differentials and 27.00 x 33 tires (33.5 x 33 optional) contribute to the unmatched performance of "Twins".

On job after job—small grading work to big yardage projects—Euclid Twin-Power Scrapers have moved dirt at lower cost than other scrapers. They can do the same on your jobs and protect your profit margin in spite of rising costs. Your dealer has job studies with actual production and cost data that will be helpful—just ask for "Twin Facts".

Be sure to check your dealer's schedule for showing the new color film "Memo to the Winning Contractor"—in less than half an hour you'll "visit" a wide range of jobs and see for yourself why "Twins" give you a big edge in bidding.

30% more payloads

Working with single engine scrapers at the Jackson, Alabama Lock and Dam project, a "Twin" bulled through adverse material that delayed other scrapers, and moved almost a third more payloads.

42 "Twins" on Toll Road

On the Illinois Toll Road where bidding competition was keen, eight contractors have put a total of 42 "Twins" to work. "Twin" performance is helping overcome wet weather conditions that stop other scrapers.

3500 yds. in 10 hours

For expansion of Vancouver Island airport runways, Hassel Bros. Ltd. used two "Twins" . . . overcame weather delays and adverse conditions. . . . moved 7,000 yds. in a 10 hour shift, self-loading clay and gravel.

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Your Euclid Dealer offers the best equipment investment

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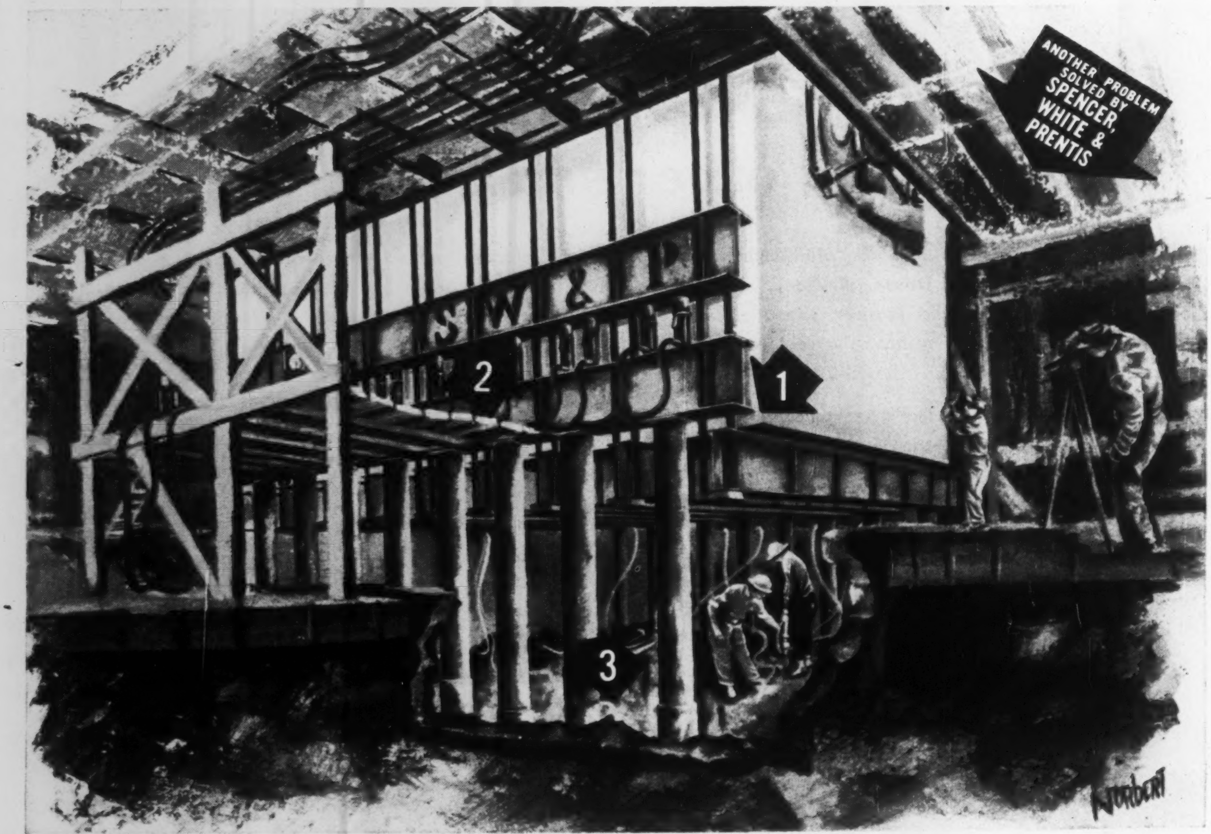
EUCLID EQUIPMENT

FOR MOVING EARTH, ROCK, COAL AND ORE

600-TON VAULT LOWERED ON STEEL RODS
through unique use of hydraulic jacks


ANOTHER PROBLEM SOLVED BY SPENCER, WHITE & PRENTIS
SW&P
1
2
3
NORBERT

Project: Modernizing of First National City Bank, Wall Street, New York City
Architects: McKim, Mead & White, New York City *Engineers: Purdy & Henderson Associates, New York City*
General Contractor: Starrett Brothers & Eken, New York City

1. Needle beams and threaded steel rods carry vault load.
2. As jacks retract, lowering top carriage beam, the suspended vault descends 10 inches.
3. New pipe piles (replacing old wood piles) provide temporary lowering support and permanent foundation.

As part of the bank's modernization, it was desired to lower a 600-ton vault 13 ft. into a basement pit — to do this without interrupting normal banking activities. The conventional method — that of using jacks directly under the vault — would have incurred great risk at considerably higher costs.

The above sketch shows the unique plan devised, and successfully carried through, by Spencer, White & Prentis. Its chief features were:

Maximum certainty. There was no shifting of load or support—the heavy vault was securely held from above throughout the entire lowering operation.

Novel method. The hydraulic jacks were used "in reverse." During the periods when the top carriage beams were holding the load delivered through the steel rods, the retraction of the jacks lowered the massive 2-story vault, 10 inches at a time. (The bottom carriage beams, resting on the piles, remained stationary throughout).

Lowering tolerance. The vault, suspended on 32 steel rods, was maintained level so that delicately balanced vault doors would not go out of adjustment.

Descriptive Literature on Request

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OF CANADA: 700 BAY ST., TORONTO • 2052 ST. CATHERINE ST. WEST, MONTREAL

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, Reports
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† **Mass., Bedford**—UTILITIES—BA 3/25—U. S. Eng., 150 Causeway St., Boston, constr. utilities, sewage collection sys., underground electric facilities, etc., Laurence G. Hanscom Airfield, ENG-19-016-58-90. $600,000-$700,000. Plans deposit $10. CD 2/20.

▲† **Me., Limestone**—UTILITIES—BA 3/25—U. S. Eng., 150 Causeway St., Boston, Mass., constr. surface water supply, Loring Air Force Base on Little Madawaska River, ENG-19-016-58-101. $1,500,000-$2,000,000. Plans deposit $25. Metcalf & Eddy, Statler Bldg., Boston, Mass., engrs. CD 2/29.

† **Me., Limestone**—ILAS FACILITIES—BA On Or About 3/26—U. S. Eng., 150 Causeway St., Boston 14, Mass., constr. "ILAS" facilities, Loring Air Force Base, ENG-19-016-58-108. $100,000-$200,000. CD 9/17.

Mass., Lawrence—APRON-TAXIWAY, etc.—BA 3/31—City, Lawrence Airport Comn., City Hall, Proj. 9-19-007-04, apron, taxiway, terminal and equipment bldg., Richard F. Condon Airport, North Andover. $300,000. Plans deposit $25. Joseph L. Paley, 105 Newbury St., Boston, engr. CD 5/23.

▲† **Vermont**—BA 4/17—U. S. Eng., 150 Causeway St., Boston, Mass., North Springfield Dam and appurtenant structures, Black River (Stage 11) outlet works, intake tower, rein.-con. tunnel and utilities, ENG-19-16-58-36, North Springfield. Plans deposit $50. CD 2/20.

BUILDINGS—BA

Conn., Naugatuck—ARMORY—BA 3/19—State P. Wks. Comr., 165 Capitol Ave., Hartford, one-unit armory, Connecticut National Guard, Proj. CP-Q-167A. $390,000. Plans deposit $25. Fletcher-Thompson, Inc., 211 State St., Bridgeport, engr. CD 7/25.

HEAVY CONSTRUCTION—SLC

Conn., Stamford—MARINA IMPRVS.—Scott-Paine Marine Corp., Wallace St., soon lets contract docks and floats, "Yacht Haven" Marina at Palmer's Island and Ware Island. $202,500. C. A. Chaney & Assocs., Div. of Frederick Harris, Inc., 27 William St., New York, N. Y., archts. Engineering Services, Inc., 119 New London Tpk., Glastonbury, engr. CD 3/21/57.

HEAVY CONSTRUCTION—LB & CA

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Bids opened 2/25,
Bayer & Mingolla Constr. Co., P. O. Box 991, Worcestor, Mass., LB **$576,138**, est. $672,971, highway reconstr. Rte. 68, FAP S-90(8), Rutland. CD 2/12.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Bids opened 2/25,
Marinucci Bros. & Co. Inc., 51 Ceylon St., Dorchester, Mass., LB **$6,104,178**, est. $7,243,869, hy. and bridge work, FA Proj. U-229(13) U-344(10), Milton, Randolph-Quincy and Braintree. CD 1/29.

† Gerard **Leone**, 510 North Ave., Weston, Mass., CA **$261,833**, est. $250,000, Proj. No. 186-57, imprv. Regatta Point, Lake Quinsigamond, WORCESTER, MASS. Commonwealth of Mass., Dpt. Natural Resources, 15 Ashburton Pl., Boston, Mass. Bids Dec. 19. CD 1/20, under LB.

† **Plantations Constr. Co., Inc.**, 1087 Greenwich Ave., Warwick, R. I. LB **$253,835**, est. $165,220 addns., alterations, Special AAA Facilities, defense area NIKE Batteries 19-29, Mass-38-58-69-79 and 99, ENG-19-016-58-61, RHODE ISLAND. U. S. Eng., 150 Causeway, St., Boston, Mass. Bids Feb. 20. CD 1/23.

Dayton Constr. Co., 400 North St., Watertown, Conn., CA **$135,000**, 900 ft artificial infiltration basin, 15 to 100 ft. wide, Hart Farm Reservoir, WATERTOWN, CONN. Watertown Fire Dist., 37 DeForest St., Watertown, Conn. Awarded Feb. 21.

BUILDINGS—LB & CA

▲ **Beacon Constr. Co.**, 102 Hano St., Allston, Mass. LB **$1,448,500**, HOUSING Proj. NH 4-1 Gosling Rd. and Wood Ave., PORTSMOUTH, N. H. Portsmouth Housing Auth., 25 Vaughan St., Portsmouth, N. H. Bids Feb. 27. CD 1/31.

▲ **Colony Hills**, Red Bush Ave., Milford, Conn. Owner Builds, **$1,476,000**, 82 HOUSES, "Colony Hills", Red Bush Lane, MILFORD, CONN.

▲ **Thomas J. Riordan Co.**, 198 Westport Ave., Norwalk, Conn., CA **$1,265,000**, HIGH SCHOOL, Bound Line Rd., WOLCOTT, CONN. Town of Wolcott, School Bldg. Comn., Woodtick School, Nichols Rd., Wolcott, Conn. Bids Jan. 17, awarded Feb. 25, CD 2/7, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

† **New York**—NIKE CONVERSION, etc.—BA On Or About 3/20—U. S. Eng., 111 E. 16 St., New York, Zone 3, conversion from Nike Ajax to Nike Hercules at Special AAA facilities, incl. clearing, grubbing, grading, excav. fill, landscaping, drainage, also b. conc. paving in area around underground missile storage structure, constr. sentry box and inner security fence in area and outer security fence around full Launcher Area, Fort Tilden, ENG-30-075-58-196. $500,000-$600,000.

New York—BA 3/27—Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, furnish, deliver thereof f.o.b. University Siding, New York, generator main leads isolated phase bus for Lewiston Power Plant, Niagara Co., Specs. No. PA-N-25010, Niagara Contr. No. NP 6. CD 8/15.

N. Y., New York—SIGNAL EQUIPMENT—BA 3/28—New York City Transit Auth., 370 Jay St., Brooklyn, Zone 1, furnishing, installing addnl. signal equipment on local tracks for West Side Imprvt., Broadway-Seventh Ave. Line, IRT Division, Chambers St. to 34 St., Manhattan Boro, Contr. S-98. CD 8/5/45.

N. Y., Syracuse—BA 4/18—Metropolitan Syracuse Treatment Plant District, Onondaga Co., County Office Bldg., Rm. 102, 600 South State St., Zone 2, Contr. 9, general constr. flow units, for Hiawatha Treatment Plant; Contr. 10, low lift pumping equip.; Contr. 11, heating and ventilating; Contr. 12, electrical; Contr. 13 plumbing, Contr. 14, electrical equip. Plans deposit $40 per set. O'Brien & Gere, 400 East Genesee St., Zone 2, consult. engrs. CD 7/18/52.

BUILDINGS—BA

▲ **N. J., Bergenfield**—SCHOOL—BA 3/25—Bd. Educ., Bor. of Bergenfield, Supt. Schools, E. Clinton and S. Washington Aves., Senior High School, $3,625,000, Lawrence Licht, 19 Knickerbocker Rd., Englewood, archt. CD 11/28/56.

Pa., Phila.—MAINTENANCE, etc.—BA 3/26—General State Auth., 18th and Herr Sts., Harrisburg, general constr., heating, plumbing and electrical constr. incl. steam heating sys. for maintenance and service bldg. known as "Bldg. 13", and for Apartment Bldgs. No. 19 and No. 20, at Henry R. Landis Tuberculosis Hospital, Engineering Consultants, 843 N. 19th St., archts.-engrs. CD 10/2.

▲† **Md., Bethesda**—LABORATORY—BA 4/2—General Services Admin., P. Bldgs. Service, Wash. 25, D. C., general constr., 5 story, penthouse, bsmnt. Biologics Standards Laboratory, (except elevators) National Institutes of Health, Proj. No. 18081, Contr. No. GS-R3-B 5900, Appr. No. 47-75 x 0394. Plans deposit $35. CD 8/7/56.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—State P. Wks., Dpt., The Gov Alfred E. Smith State Office Bldg., Albany, Bids opened 2/27,
Cayuga Foundation Corp., 30 Vesey St., New York 7, N. Y., LB **$1,057,483** est. $1,103,000 (6 bidders), placement rein.-con. pavement on deck of mile-long State Thruway bridge now under constr. across Hudson River, south Selkirk and Castleton, Albany and Rensselaer Counties. CD 1/30.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
Md.—**Robert T. Main, Inc.**, Salem, Va., CA **$547,369**, drainage, widening, relocation, surf. 2.779 mi. State Rte. 26-Winfield thru Taylorsville, CL-304-6-720, Carroll Co.;
Md.—**Wright Contg. Co.**, Odenton, Md., CA **$2,278,032**, grading, drainage, surf. 2.197 mi. Wise Ave. Interchange US 240 and Washington Circumferential Hy., incl. 6 welded steel bridges, Contract M-512-17-320, Montgomery Co.;
Md.—**Williams Constr. Co.**, Middle River, Md., CA **$1,915,763**, grading, drainage, paving 3.814 mi. Baltimore-Harrisburg Expressway and Middletown Interchange, north of Cockeysville, Contr. B 578-31-420, Baltimore Co. Grand total $4,670,964. Bids Jan. 7. CD 1/14, under LB.

† **Wertheimer Constr. Co.**, 1021 Arlington Blvd., Arlington, Va. CA **$778,705**. constr. AAA Group and Battalion Headquarters Facilities, ENG-49-080-58-5 (4), Suitland (vicinity) MARYLAND. U. S. Eng., First and Douglas Sts. N.W., Wash 25, D. C. Bids Feb. 11. CD 2/17, under LB.

Eager Stone & Constr. Co., 710 Eager St., Baltimore, Md. LB **$75,168**. (4 bidders), Contr. 98-D, storm drainage constr. in Winkledoodle Branch, Audrey Lane to Indian Head Hy., Indian Head, HYATTSVILLE, MD. Washington Suburban Sanitary Comn., Hamilton St., Hyattsville, Md. Bids Feb. 24. CD 2/18.

BUILDINGS—LB & CA

Bellmore Greens Colony, c/o Albert B. Meklenburg Organization, 220 E. Jericho Turnpike, Mineola, L. I., N. Y., Owner Builds. **$380,000**. 20 HOUSES, Bellmore Rd., south of Jerusalem Ave., BELLMORE, N. Y.

Buick Leasing Corp., 97-27 64 Rd., Forest Hills, N. Y., Owner Builds, **$750,000**, 6 story APARTMENT for 138 families and 28 car GARAGE, 26-16 Homecrest Ave., BROOKLYN, N. Y. Jack Brown, c/o owner, archt.

▲ **Brooktown Bldg. Corp.**, c/o Morris Lapidus Associates, archts., 256 E. 49 St., New York 17, N. Y., Separate Contracts. **$2,500,000**. 15 story OFFICE, 141 Livingston St., corner Smith St., BROOKLYN, N. Y.

Joseph Constantine, 8101 14 Ave., Brooklyn 28, N. Y., Owner Builds **$493,000**, 29 HOUSES, 701-63 E. 80 St., BROOKLYN, N. Y. Seelig & Finkelstein, 153 Pierrepont St., Brooklyn 2, N. Y., archts.

Ben Okun, 90-50 Parsons Blvd., Jamaica, N. Y. Owner Builds. **$950,000**. 6 story APARTMENT with 100 apartments and 52-car GARAGE, 33 E. 48 St., BROOKLYN, N. Y. Seeling & Finkelstein, 153 Pierrepont St., Brooklyn 2, N. Y., archts. CD 9/4.

Pontiac Leasing Corp., 97-27 64 Rd., Forest Hills, N. Y., Owner Builds, **$500,000**, 6 story APARTMENT with 63 apartments and 26 car GARAGE, 2611 E. 13 St., BROOKLYN, N. Y. Jack Brown, c/o owner, archt.

Five Towns Apartments, c/o Anthony Signorielli, 120-44 Queens Blvd., Kew Gardens, N. Y., Owner Builds. **$700,000**. APARTMENT for 80 families and 24-car GARAGE, Scranton and Atlantic Aves., EAST ROCKAWAY, N. Y.

▲ **Lefrak Organization**, 97-27 64 Rd., Forest Hills, N. Y., Owner Builds **$5,000,000**, 15 story Park-Vendome OFFICE and APARTMENTS, Queens Blvd. and 83 Ave., FOREST HILLS, N. Y.

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 2, N. Y., LB **$4,160,000** (8 bidders), general contract, constr. Northeast Queens HIGH SCHOOL, North Hempstead Turnpike, Utopia Parkway, 59 Ave. and Fresh Meadow Lane; FRESH MEADOWS, N. Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City 1, N. Y. Bids Feb. 28, CD 2/14.
Meyerbank Elec. Co., 126 W. 32 St., New York 1, N. Y., LB **$814,000** (10 bidders), electrical work and lighting fixtures (Fresh Meadows, N. Y.);
Daniel J. Rice, Inc., 41-50 38 St., Long Island City, N. Y., LB **$651,000** (7 bidders), heating (Fresh Meadows, N. Y.);

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	**Federal Government**
▲	**Project of $1,000,000 or over.**
ENR	**Engineering News-Record**
CD	**Construction Daily**

For additional reports see Construction Daily.

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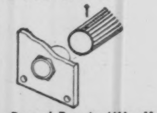

Round Peg in "Hex" Hole Riveted to Rung.

LOUISVILLE
LADDER COMPANY
1101 West Oak Louisville, Kentucky

Endres Plumbing Corp., 31-65 29 St., Long Island City. N. Y., LB **$436,000** (9 bidders), plumbing (Fresh Meadows, N. Y.).

Country Way Homes, c/o Herman H. York, archt., 90-04 161 St., Jamaica, N. Y., Owner Builds. **$900,000.** 30 HOUSES, Rockaway Ave., GARDEN CITY, N. Y.

Rocklyn Constr. Co., 163 W. 72 St., New York 23, N. Y. CA Est. **$416,000.** DORMITORY, ANNANDALE-ON-HUDSON, N. Y. Bard College, Annandale-on-Hudson, N. Y. CD 4/8.

Thomas Crimmins Contg. Co., 624 Madison Ave., New York 22, N. Y. CA **$500,000.** Electrical SUBSTATION, 22 St. and 39 Ave., LONG ISLAND CITY, N. Y. Consolidated Edision Co., 4 Irving Pl., New York 3, N. Y. T. R. Galloway, c/o owner, archt.

▲ **Albert & Harrison**, 15 E. 48 St., New York, Zone 17, N. Y., Owner Builds, **$1,000,000**, APARTMENT, York Ave., northeast corner 77 St., NEW YORK, N. Y. Leo Stillman, 332 E. 149 St., New York 51, N. Y., archt. CD 10/4.

Tilden Constr. Corp., 24 State St., New York 4, N. Y., LB **$469,212**, (15 bidders) replacement windows and screens, BLDGS. 2, 3, 5, 6, 7, 8, 17, 34, 35, 36, 37 and 47, Rockland State Hospital, ORANGEBURG, N. Y. State Dpt. P. Wks., Bureau Accounts & Contracts, The Gov. Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Feb. 20.

Campbell Bldg. Co., 39 Cannon St., Poughkeepsie, N. Y., CA Est. **$675,000**, LANGUAGE CENTER, POUGHKEEPSIE, N. Y. Vasser College, Raymond Ave., Poughkeepsie, N. Y. Winston Elting 25 E. Jackson Blvd., Chicago, Ill. and Paul Schweiker, 5935 5 Ave., Pittsburgh, Pa., archts.

▲ **J. C. Gorga Co.**, 30-05 Hillside Terrace, Fair Lawn, N. J., Owner Builds, **$1,000,000**, RECREATION CENTER, incl. restaurant, 32 bowling alleys and skating rink on Saddle River Road, FAIR LAWN, N. J. Bernard Hersh, 507 Boulevard St., East Paterson, N. J., archt.

▲ **Paul Goldman**, U. S. Hy. 29 and Eatontown Rd., Matawan, N. J. and **Saul Cantor**, 101 Northwood Ave., Linden, N. J. Owner Builds. **$1,750,000**, 75 HOMES between Northfield Ave. and Old Short Hills Rd., LIVINGSTON, N. J.

▲ **Merritt Park Bldg. Corp.**, State Hy. 234, South Amboy, N. J., Owner Builds. **$6,000,000.** 439 HOUSES, Rtes. 9 and 34 near Chesequake State Park, Madison Twp., OLD BRIDGE, N. J. Roche & Roche, Rte. 46 Clifton, N. J., and Joseph Hilton, 28 Oak Crest Rd., West Orange, N. J., archts.

▲ **John W. Ryan Constr. Co.**, 11 East 42 St., New York, N. Y., CA **$3,075,000**, est. $3,000,000, HOSPITAL addn., alterations, SUMMIT, N. J. Overlook Hospital 193 Morris Ave., Summit, N. J. Bids Jan. 30. CD 2/4, under LB.

▲ **G. A. Fuller Co.**, First National Bank Bldg., 5th and Wood Sts., Pittsburgh 22, Pa. CA Est. Over **$1,000,000.** PLANT addn., BRADFORD, PA. Corning Glass Works, 1946 Crystal St., Corning, N. Y. Day & Zimmerman, Inc., 1700 Sansom St., Phila., Pa., engr. CD 2/27.

Pa. Pub. School Bldg. Auth., 101 S. 25th St., Harrisburg, Pa., rejected bids Jan. 23 SECONDARY SCHOOL BLDG. for California Community Jt. School Bd., CALIFORNIA, PA. LB **$876,000**. CD 1/28, under LB.

▲ **Stofflett & Tillotson**, 2403 Eastburg St., Phila. Pa. CA **$1,595,000** general contrast JUNIOR-SENIOR HIGH SCHOOL, swimming pool MICKLEY, PA. Whitehall School Auth., Hokendauqua, Pa. Wolf & Hohn, 456 Hamilton St., Allentown, Pa., archts.

▲ **Baltimore Contractors**, 711 S. Central Ave., Baltimore, Md. LB **$1,139,400.** (combined) (4 bidders), DINING HALL and LABORATORY, State Teacher College, FROSTBURG, MD. State of Maryland, Dpt. P. Imprvts., 506 Park Ave., Baltimore 1, Md. Bids Feb. 25. CD 2/14;
John I. Vandergrift, Liberty Trust Bldg., Cumberland, Md. LB **$465,485.** (5 bidders), DINING HALL (Frostburg, Md.);
George Constr. Co., P.O. Box 326, Cumberland, Md. LB **$653,054.** (4 bidders), LABORATORY, (Frostbug, Md.)

▲ **Wertheimer Constr. Corp.**, 1021 Arlington Blvd., Wash., D. C. LB **$2,151,000.** (5 bidders), constr. 183-unit HOUSING PROJ. DC 1-31 Sheridan Terrace, on Sheridan Rd., between Howard and Pomeroy Rds. S.E., WASH., D. C. National Capital Housing Auth., 1729 New York Ave. N.W., Wash., D. C. Bids Feb. 27. CD 2/10/58.

SOUTH

BUILDINGS—BA

Ky., Richmond — DORMITORY — BA 3/28 — Commonwealth of Ky., Div. Purchases, Frankfort, 2 story, 41 x 254 ft., brick, steel men's dormitory for Eastern State College. $560,000. Plans deposit $50. Brock & Johnson, 159 Barr St., Lexington, archts. CD 9/13.

BUILDINGS—SLC

Fla., Miami Shores—EDUCATIONAL—Miami Shores Presbyterian Church, 602 NE 96th St., soon lets contract Education Bldg., 602 NE 96th St. $350,000. Harold E. Wagoner, Archt. Bldg., Phila., Pa., archt. Irving Horsey, 9822 N.E. 2nd Ave., Miami Shore Village, assoc. archt. Allaback & Rennis, Commercial Trust Bldg., Phila., Pa. struct. engrs. Wm. A. Berry 360 Minorca Ave., Coral Gables, elect. engr. Mitchell-Gorden, 302 Bird Rd., Coral Gables, mech. engrs.

HEAVY CONSTRUCTION—LB & CA

† **VIRGINIA**—Bureau P. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington,
Triangle Constr. Co., 8700 Flower Ave., Silver Spring, Md. CA **$678,014**, Proj. 1H3 bridge over James River, prestressed concrete superstructure, Blue Ridge Parkway. Bids Jan. 23, awarded Feb. 24. CD 1/29, under LB.

NORTH CAROLINA—State Hy. Comn., Raleigh, Bids opened 2/25;
N. C.—**Wilson Constr. Co.**, Box 603, Salisbury, N. C., LB **$120,744**, est. $100,000-$125,000, Proj. 1-700 (16) 6.3 mi. US 70 structures addn. lane on US 70 from N. C. 18; southeast of Morganton to County Rd. southeast of Valdese, Burke Co.;
N. C.—**John H. Brinkley**, Thomasville, N. C. LB **$80,891**, est. $75,000-$100,000 Proj. S-899 (1) structures from point on N. C. 90, 3,500 ft. east of Collettsville, east to point on Abingdom road approx. 2.5 mi. west of N. C. 18, Caldwell Co.;
N. C.—**Crowder Constr. Co.**, Box 71, Charlotte, N. C. LN **$74,587**, est. $50,000-$75,000, Proj. 8.29206 S-900 (1) structures, 4.83 mi. from point on N. C 150 approx. 1.8 mi. northeast of Chronicle, north to point on paved county road 3.9 mi. northwest of Terrell, Catawba Co.;
N. C.—**W. E. Graham & Sons**, Box 268, Cleveland, N. C. LB **$157,721**, est. $150,000-$175,000, Proj. F-605 (3) F275(8) 8.55 mi. structures US 19-A and 441 from point just east of Junction of US 19 A and US 441 southeast to a point in Dillsboro and connection US 23 at end of Proj., Jackson, Co. CD 2/12.

▲ **NORTH CAROLINA**—State Hy. Comn., Raleigh, Bids opened 2/25;
N. C.—**W. E. Graham & Sons**, Box 268, Cleveland, N. C., LB **$113,663**, est. rdy $125,000-$150,000. strs. $50,000-$75,000, Proj. 8.16127 S-897 (1), grading, STBC CABC, BST and structures, 2.13 mi. N. C. 85, Anson Co.; LB-**$290,213**, est, $300,000-$400,000; Proj. 8.17127 S-736 (2), S-24, (5), grading CABC, BST and structures, 2.53 mi., Route MC 194, Part 1 between Lansing and Bina; Part 2-between Southport and Jefferson, Ashe Co.; LB **$394,968**. est. $500,000, Proj. 8.18184, grading 6.3 mi. US 70, addnl lane on U. S. 70 from N. C. 18 southeast of Morganton to County Rd. southeast of Valdese, Burke Co.; LB **$400,587**, est. $300,000-$400,000, Proj. 8.17386, S-838 (3) US-838 (4) SABC and BST 6.89 mi. NC 150 surfacing N. C. 150 from point approx. 1920 ft. south of Davidson-Forsyth Co. line, North to a point in Winston-Salem, Davidson and Forsyth Counties;
N. C.—**Barrus Constr. Co.**, Box 395, Kinston, N. C. LB **$139,125**, est. $150,000-$175,000, Proj. 8.22212 S-638 (2) 5.68 mi. CABC and S. A. surface, from point on N. C. 33 approx. 5 mi. northwest of Washington, Northeast to point on U. S. 17 approx. 7 mi. north of Washington, Beaufort Co.; LB **$72,635**, est $75,000-$100,000, Proj. BS 7.191110, S. A. or bit. concr. surf. 11.05 mi., US 17, resurf. sections of US 17 between Maysville and the Craven Co. Line, Jones Co.;
N. C.—**J. E. Critcher, Inc.**, Box 39, Asheville, N. C. LB **$1,002,616**, est. exceed $500,000. Proj. 8.19516 8.55 mi. US 19, 441 and 23, grading, CABC BST US 19-a and 441 from a point just east of junction of US 19-A and US 441, southeast to point in Dillsboro, and connection with U. S. 23 at end of Proj. Jackson Co.; LB **$223,386**, est. $250,000-$300,000; Proj. 8.28206, 4.77 mi. grading CABC BST, from point on N. C. 90, 3,500 ft. east of Collettsville, east to a point on Abingdom Rd. approx. 2.5 mi. West of N. C. 18, Caldwell Co.;
N. C.—**Nello L. Teer Co.**, Trust Co. Bldg., Durham, N. C. LB **$450,140**, est. $400,000-$500,000, Proj. 8.14141 F-716 (2) fine grading, CABC and BST 4.12 mi. US 15 and 501, surfacing on US 15 and 501 West side Durham by-pass, Durham Co.;
N. C.—**Thompson-Arthur Paving Co.**, Box 1197 and **Lambeth Constr. Co.**, Box 1102, Greensboro, N. C., LB **$1,120,313**, Proj. 8.15016 1-644 (18) grading and structures 10.84 mi. US 70 addnl. lane on US 70 from N.C. 61 West of Burlington East to N.C. 54, Guilford and Alamance Counties.
N. C.—**T. A. Loving Co.**, Box 6355, Raleigh, N. C., LB **$389,041**, Proj. 8-12968, F0209 (14) STBC, CABC and bit. conc. binder and surface, 6.83 mi. US 301, surf. and resurf. on US 301 from a point in Kenly, Northeast to point approx. 0.7 mi. south of Lucama, Johnston and Wilson Counties.
N. C.—**E. B. Towles Constr. Co., Inc.**, Box 1617, Wilmington, N. C., LB **$292,654**, est. $300,000-$400,000, Proj. 8.13598 S-868 (5), grading, subgrade reinf., CABC b. conc. binder and surface and structures, 0.79 mi. grade separation over US 17 and 74 and Atlantic Coast Line Railroad between Wilmington and Wrightsville, New Hanover Co. CD 2/18.

John V. Barger & Co., 1406 E. Atlantic Blvd., Delray Beach, Fla., LB **$277,700** (10 bidders). Proj. No. 4, WW facilities, DELRAY BEACH, FLA. City, Mark Flemming, dir. P. Wks., City Hall, Delray Beach, Fla. Bids Feb. 25. CD 2/13.

Fred Howland, Inc., 1451 NW 20th St., Miami, Fla., LB **$523,400** (8 bidders) **(A)** terminal bldg. addn. LB **$429,100**, (B) "E" Pier, Section 1-B, Miami International Airport, MIAMI, FLA. Dade Co. Port Auth., Court House, Miami, Fla. Steward-Skinner Assocs., 223 SE 1st St., Miami, Fla., archts., Mitchell-Gordon Assocs., 320 Bird Rd., Coral Gables, Fla., mech. engrs. Jorgensen & Sebreffler, 1200 SW 1st St., Miami, Fla., archts.-engrs. Bids Feb. 26. CD 2/4/58.

Southern Bell Telephone Co., Phoenix Bldg., Birmingham, Ala., Own Forces, **$300,000**, TV relay towers, Birmingham, Caffee Jct., Maplesville, Marbury and Montgomery, ALABAMA.

▲ **C. F. W. Constr. Co.,** Fayettesville, Tenn. CA **$1,070,261** Contr. "A" interceptor sewers and force mains, DECATUR, ALA. City, City Hall, Decatur, Ala. Bids Dec. 12, awarded Feb. 20. CD 1/7, under LB;

Dethiefs & Hannon, 218 W. 11th St., Anniston, Ala. CA **$869,115** Contr. "B" sewage treatment plant and sewerage pumping station (Decatur, Ala.).

† **The Deep South Constr. Co., Inc.,** 1936 Cleveland Ave., Montgomery, Ala., CA **$274,190,** concrete aircraft aprons with wash areas, service pits and compressed air piping, storm drains, sanitary sewers and water lines, etc. at Ozark Army Air Field, FORT RUCKER, ALA. U. S. Eng., 2301 Grant St., Mobile, Ala. Bids Feb. 19. CD 1/30.

▲ **MISSISSIPPI**—State Hy. Dpt., T. C. Robbins, dir., Jackson

Miss.—**Mid-State Paving Co.,** Meridian, Miss., CA **$564,326** grade, drain, culverts and box bridge 10.966 mi. US Hy. No. 49 between Gulfport and Wiggins, F 008-1 (4) & F-008-1 (5) Harrison and Stone Counties; CA **$108,376,** base and double bit. surf. treatment 10.24 mi. Miss. Hy. No. 13 between Maxie and Lumberton, Proj. F 023-1 (8), Forrest Co.; CA **$288,193,** sub-grade preparation topping, base, double bit. surf. treatment 10.89 mi. Miss. Hy. No. 25 between Carthage and Louisville, Proj. No. F-056-1 (10) Leake, Attala and Winston Counties;

Miss.—**W. E. Blaine & Son,** Jackson, Miss., CA **$203,875,** base, double bit. surf. treatment 7.525 mi. Miss. Hy. No. 19 between Zama and Jct with Miss. Hy. No. 14, Proj F-026-1 (12), Attala Co;

Miss.—**Boyd Constr. Co.,** Grenada, Miss., CA **$387,119,** base, double bit. surf. treatment 20.08 mi. Miss. Hy. No. 9-W, between Bruce and Oxford Projs. F-055-1 (6) & F-055-1 (7), Calhoun and Lafayette Counties;

Miss.—**John H. Moon & Sons,** Ridgeland, Miss., CA **$174,926,** temporary grav. surf. course 5.397 mi. Miss. Hy. No. 330 between Coffeyville and Oakland Proj. S-0788 (5) A, Yalobusha Co. Bids Feb. 25. Grand total $1,726,815. CD 2/14.

Leonard M. Beauford, 2321 Jefferson Hy., New Orleans, La., CA **$194,690,** recreation bldg. and swimming pool, MONTEGUT, LA. Bd. Comrs. Recreation Dist. 6, Terrebonne Parish, Montegut, La. De Fraties Associates, 320 E. Main St., Houma, La., engrs. Bids Jan. 28.

Emile M. Babst Co., 4034 Tchoupitoulas St., New Orleans, La., CA **$599,000** (combined bid) underground piping and power plant at Tulane University, NEW ORLEANS, LA. Tulane University, 6823 St. Charles Ave., New Orleans, La. CD 1/30, under LB.

KENTUCKY—State Hy. Dpt., Frankfort, Bids opened 2/20,

Ky.—**T. C. Young Constr. Co.,** Williamsburg, Ky., LB **$101,768** (8 bidders), traffic bound surf. 4.042 mi. The Ky. 635 Eubank (Ky. 70) Rd. from Ky. 635 approx. 0.5 mi. southeast of Lincoln-Pulaski Co. line extending northeasterly to Lincoln-Pulaski Co. line approx. 0.5 mi. west of Eubank. S 447 (5) SP 69-370 & SP 100-795, Lincoln and Pulaski Counties;

Ky.—**Sam Nally Co.,** Bardstown, Ky., LB **$495,921** (6 bidders) high type surf. 4.28 mi. The Harrodsburg-Lawrenceburg Rd. from Cornishville St. in Harrodsburg extending northerly to point approx. 1.3 mi. south McAfee, F 160 (6) SP 84-12, Mercer Co. CD 1/22.

John Wile Constr. Co., 826 Humler St., Louisville, Ky., CA **$392,000,** install only 60 in. water main along Watterson Expressway, LOUISVILLE, KY. Louisville Water Co., 435 S. 3rd St., Louisville, Ky. Bids Feb. 7. CD 2/12, under LB.

BUILDINGS—LB & CA

Abco Bldrs., Inc., 2220 College Ave. N.E., Atlanta, Ga., LB **$346,048,** PHYSICAL EDUC. BLDG., Hapeville High School, HAPEVILLE, GA Fulton Co. Bd. Educ., Fulton Co. Admin. Bldg., Atlanta, Ga. Bids Feb. 20.

▲ **Arkin Constr. Inc.,** 1827 Purdy Ave., Miami Beach, Fla., LB **$1,152,657** (6 bidders), 102 room HOTEL "Bowman Ashe", Ponce De Leon Blvd. and Phoenetia Ave., CORAL GABLES, FLA. Bowman Ashe Hotel Corp., Irving Simbreg, pres., Box 4314, Miami Beach, Fla. Bids Feb. 25. CD 2/18.

John V. Barger & Co., P.O. Box 2253, Delray Beach, Fla., CA **$510,580,** 1 and 2 story, CB-S & RIC Delray JUNIOR HIGH SCHOOL, N. 2nd Ave., WEST PALM BEACH, FLA. Co. Bd. P. Instruction, 301 N. Olive Ave., West Palm Beach, Fla. Edgar S. Wortman, 1122 North Dixie Lake Worth, Fla., archts. Bids Feb. 7. CD 2/5.

† **L. A. Trapp Constr. Co.,** 334 State S.E., Grand Rapids, Mich., LB **$852,683** (13 bidders), 6 Battalion TANK REPAIR SHOPS, 1 story, 60x135 ft rein.-con. slabs, concrete block walls, ENG-15-029-58-31, FORT KNOX, KY. U. S. Eng., P. O Box 59, Louisville 1, Ky Bids Feb. 20. CD 1/15

† **Wehr Constructors, Inc.,** 2127-S. Floyd St., Louisville, Ky., CA **$575,104,** three BACHELOR OFFICERS QUARTERS (nurses), ENG-15-029-58-1, FORT KNOX, KY. U. S. Eng., P. O. Box 59, Louisville 1, Ky. Bids Jan. 14. CD 2/4, under LB.

▲ **Consolidated Eng Co.,** 20 E. Franklin, Baltimore 2, Md., CA Est. **$1,500 000,** story addn. to present DEPARTMENT STORE, LOUISVILLE, KY. Louisville Realty Co., 1414 Bardstown Rd., Louisville, Ky. Stewart Dry Goods Co., 4 and Walnut, Louisville 2, Ky., lessee. Bids Jan. 31. CD 12/26.

Tunnel concrete handled by Dumpcretes on Swift Dam Project

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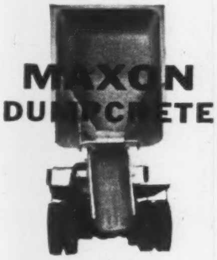

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Manufacturing Division—32
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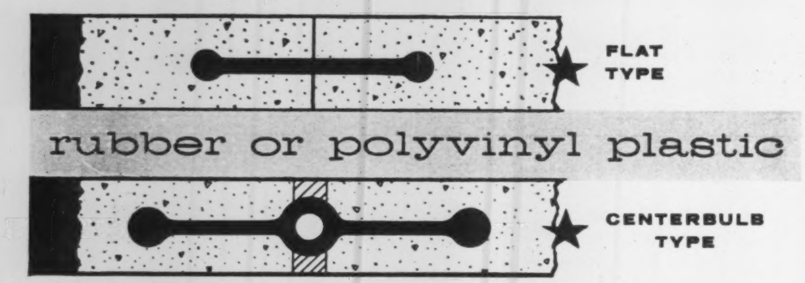

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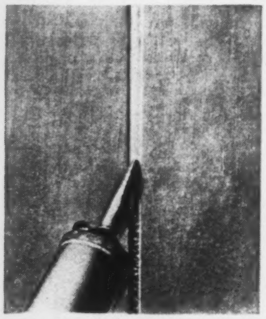

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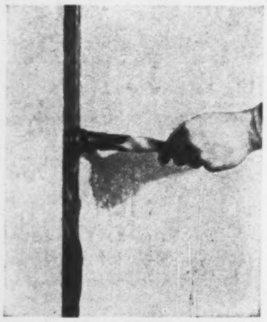

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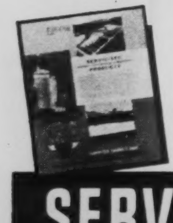

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MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **O., Cincinnati**—BA 3/19—City, City Hall, low service pumping station intake and tunnel under river. $3,000,000-$4,000,000. Plans deposit $40. CD 5/19/54.

▲ **O., Toledo**—MARINA—BA 4/1—Toledo, Lucas County Port Auth., Toledo, 1st stage, Port Terminal, Presque Island, Maumee River, incl. clearing site, 34,000 lin. ft. earth dike, 1,000 lin. ft. steel piling bulkhead, 9,000 tons slope protection. $1,250,000. Plans deposit $25. Parsons, Brinckerhoff, Hall & Mcdonald, 51 Broadway, New York, N. Y., engrs.

▲† **O., Mansfield**—AIRPORT IMPRVS.—BA 4/2—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., 42,000 sq. ft. 11 in. concrete for parking apron; 20,000 sq. yd. 11 in. concrete for runway and 767,600 sq. yd. embankment fill for erosion control for parking a[illegible] and runway facilities. for air national guard at M[illegible]field Municipal Airport. $1,500,000-$2,000,000. CD 2/15

BUILDINGS—BA

Ill., Winchester—SCHOOL—BA 3/18—Bd. Educ., I. L. Kimmell, supt. Schools, 75x500 ft. elementary school. $500,000. D. Clarence Wilson & Assocs., Mount Vernon, archts. CD 12/5.

▲ **O., Oxford**—AUDIO-VISUAL CENTER—BA 3/19—Ohio Dpt. P. Wks., 705 Ohio Dpts. Bldg., Columbus, completion of Gaskill Hall, 3 story wing to house Audio-Visual Center, Miami University. $500,000. Plans deposit $20. Van Buren, Ayers & Blackburn, 61 South Sixth St., Columbus, archts.-engrs. CD 5 14.

▲ **Wis., Milwaukee**—HOTEL—BA 3/20—A. Hurwitz et al, 1744 N. Farwell Ave., 5 story, 180 room hotel. $2,500,000. Rosen & Horowitz, 53 W. Jackson Blvd., Chicago, Ill., and Holabird, Root & Burgee, 180 N. Wabash Ave., Chicago, Ill., archts. CD 7/1.

HEAVY CONSTRUCTION—LB & CA

WISCONSIN—State Hy. Comn., State Office Bldg., Madison,

Raemisch Constr. Co., P.O. Box 87, Middleton, Wis., CA **$552,508**, grade and subbase 4.424 mi. Hudson-Eau Claire (Hammond-Baldwin Section) Road, Interstate Hy. 94, Contr. 1, Proj. I 103-4(10), St. Croix Co. CD 1/31, under LB.

MICHIGAN—State Hy. Dpt., John C. Mackie, comr., Stevens T. Mason Bldg., Lansing, Bids opened 2/19,

Mich.—**Johnson-Greene Co.**, 416 East Huron St., Ann Arbor, Mich., LB **$122,634** (A), **$121,441** (B) est. $150,000 (11 bidders) rein.-con., steel bridge over Clam River on County R. No. 593, 11 mi. west and 2 mi. north of Mancelona, CS B1 of 5-7-2 C1 (S 323 4), Antrim Co.;

Mich.—**Canonie Constr. Co.**, South Haven, Mich., LB **$87,961**, est. $100,000 (14 bidders) rein.-con., steel bridge over Grand River on Tompkins Rd., 1½ mi. north Tompkins Center, CS B1 of 38-18-21 (S 1395 1), Jackson Co. CD 2/6.

▲ **MICHIGAN**—State Hy. Dpt., John C. Mackie, comr., Stevens T. Mason Bldg., Lansing, Bids opened 2/19,

Lewis & Frisinger Co., Box 626, 2000 S. Industrial Way, Ann Arbor, Mich., LB **$2,886,485**, est. $3,040,000 (16 bidders), grading, drainage structures 6.069 mi. and dual 24 ft. concrete paving 9 in. uniform, incl. 2 bridges on US-16 relocation from Intersection with M-66 to Interstate with Portland Rd., BI 34044 C 7-RN (I 04-2 6) BI B3 of 34-1-6 (CI) RN (I 04-2 6) BI B3 of 34-11-6 C1 RN (I 04-2 6), FAIS Hy. Act. 1956, Ionia Co., FAI. CD 1/30.

Ernest V. Ponti Excavating Co., Allen Park, Mich. CA **$209,075**, storm and sanitary sewers at Center, DEARBORN, MICH. Regents of University of Michigan, Horold M. Dorr, dean Statewide Educ., Ann Arbor, Mich. CD 7/31;

Crokeau Brothers, Inc., Berkeley, Mich., CA **$106,270**, site grading, parking lots and roadways (Dearborn, Mich.).

Subterrane Constr. Co. & Oak Park Excavating Co., Oak Park Mich., CA **$67,000**, water mains (Dearborn, Mich.).

BUILDINGS—LB & CA

Wood Constr. Co., 1133 Columbus St., Bellefontaine, O., LB **$528,000**, PSYCHOGERISTRIC BLDG., Dayton State Hospital, DAYTON, O. Dpt. P. Wks., State Dpts. Bldg., Columbus, O. Walker, Norwick & Assocs., 12 W. Monument Ave., Dayton, O., archts. Bids Feb. 18. CD 1/27.

▲ **W. C. Stumbo Co.**, rear 216 Forest St., Marion, O., CA Approx. **$1,000,000**, rein.-con., concrete block and steel PLANT addn. (for processing KEN-L.-Meal Dog Food, MARION, O. Quaker Oats Co., Mdse. Mart Plaza, Chicago, Ill. Awarded Feb. 22. CD 2/12.

▲ **Linde Co. (Div. Union Carbide Corp.)**, 420 Lexington Ave., New York 17, N. Y., design and construct, PLANT to produce 20 million cu. ft. gaseous oxygen per month for steel mill activities, PORTSMOUTH, O.

J. L. Huntley Corp., 9th Chester Bldg., Cleveland 14, O., CA **$500,000** (9 bidders) 2 story, partial bsmnt., 20,000 sq. ft., brick, concrete with bearing wall constr., OFFICE BLDG., SHAKER HEIGHTS, O. J. B. S. Corp., Union Commerce Bldg., Cleveland 14, O. CD 5/15, under Unnamed Corp., H. A. Spring, Jr., pres. as owner.

F. A. Wilhelm Constr. Co., 3914 Prospect St., Indianapolis, Ind., CA **$907,950** 3 story HOSPITAL addn. to St. Joseph's Hospital, in front of present bldg. at west edge of city, KOKOMO, IND. Sisters of St.

Joseph, St. Joseph Hospital, Kokomo, Ind. CD 11/20.

▲ **Louisville Cement Corp.**, 2nd and Walnut Sts., Louisville 21, Ky., Owner Builds, **$3,000,000,** addns., imprvs. to cement PLANT, incl. 300 ft. long kiln and 12 new concrete silos, SPEED, IND. CD 10/18/46.

▲ **Wm. E. Schweitzer Co.**, 2207 Dodge, Evanston, Ill., LB **$4,751,279,** (a) HOSPITAL (b) NURSES RESIDENCE and SCHOOL, SW corner Dempster and Western Ave., EVANSTON, ILL., Lutheran Deaconess Home & Hospital of Chicago, 1138 N. Leavitt St., Chicago, Ill. CD 1/31.

Kleinfeld Constr. Co., 5822 N. Western Ave., Chicago, Ill., CA **$789,608,** (a) North SCHOOL addn. (b) South SCHOOL addn. (c) East Elem. SCHOOL, FRANKLIN PARK, ILL. School Dist. 84, 2836 Gustave St., Franklin Park, Ill. CD 2/14, under LB.

† **Livsey & Co., Inc.**, 273 Whiteford Ave., LB **$630,495,** CENTRAL HEATING PLANT AND STEAM DISTRIBUTION SYS.; railroad tracks, Granite City Engineering Depot, GRANITE CITY, ILL. U. S. Eng., 475 Merchandise Mart, Chicago 54, Ill. CD 2/25.

▲ **Sumner Sollitt Co.**, 307 N. Michigan Ave., Chicago, Ill., CA **$2,400,000,** 2 & 3 story, bsmnt., brick HOSPITAL addn., bit. paving, HIGHLAND PARK, ILL., Highland Park Hospital, 718 Glenview Ave., Highland Park, Ill. Childs & Smith, 20 N. Wacker Dr., Chicago, Ill., archts. CD 2/7.

▲† **Atomic Energy Comn.**, Lemont, Ill., Separate Contracts, **$10,000,000,** FUEL TECHNOLOGY CENTER at Argonne National Laboratory, LEMONT, ILL., Singmaster & Breyer, Inc., 402 Lexington Ave., New York, N. Y., will design, manage and supervise construction. CD 12/17.

Felmley-Dickerson Co., 1008 N. Goodwin U., Urbana, Ill., CA **$685,000,** general contract CLINIC, URBANA, ILL. Carle Clinic, c/o Ellerbe & Co., archts., E. 505 First Nat'l Bank Bldg., St. Paul, Minn. Bids 1/15. CD 2/6.

Zinzow Constr. Co., Box 169, Elkhorn, Wis., CA Est. **$750,000,** HOTEL, DELAVAN, WIS., Lake Lawn Lodge, Hy. 50, Delavan, Wis. Elkhorn Eng. Co., Box 21, Elkhorn, Wis., engr.

† **Darin & Armstrong, Inc.**, 2041 Fenkell, Detroit, Mich., CA Est. **$800,000,** PLANT rehabilitation for Dpt. Air Force, ADRIAN, MICH. Bridgeport Brass Co., Adrian, Mich., lessee. Bids Feb. 6. CD 1/29.

Beckering Constr. Co., 2140 Horton S.E., Grand Rapids, Mich., CA **$672,000,** general contract PHYSICAL EDUCATION BLDG., 36th and Division Sts., GRAND RAPIDS, MICH. Bd. Educ., Godwin School District, Grand Rapids, Mich. Louis C. Kingscott & Assoc., 511 Monroe, Kalamazoo, Mich., archts. Bids Feb. 18. CD 1/29.

▲ **R. C. Hendrick & Son**, 427 Atwater, Saginaw, Mich., CA **$1,813,000,** general contract HOSPITAL addn., SAGINAW, MICH. St. Mary Hospital Bd. Trustees, Sister Camilla, admin., 830 S. Jefferson St., Saginaw, Mich. Bids Feb. 11. CD 1/30;
Miller Davis P. & H. Co., 1029 Portage, Kalamazoo, Mich., CA **$747,500,** mechanical contract (Saginaw, Mich.).

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

Mo., St. Louis—SWIMMING POOL, etc.—BA 3/25—City, Frank Kriz, pres. Bd. P. Service, 304 City Hall, 12th Blvd. and Market St., Zone 3, swimming pool, bathhouse, auxiliaries and appurtenances in Fairgrounds Park. $270,000. Kramer & Harm, 9640 Clayton Rd., Ladue 17, Mo., archts. Smith, Hanlon, Zurheide & Levy, Inc., 3926 Lindell Blvd., Zone 8, engr. CD 3/7.

▲ **Mo., St. Louis**—BA 4/1—City, Bd. P. Service, 304 City Hall, 12 Blvd. and Market St., Zone 3, imprv. MacArthur Bridge across Mississippi River between St. Louis, Mo. and East St. Louis, Illinois, incl. replacing present blacktop highway deck, surf. concrete, asph., etc. $1,130,000. C. E. Smith & Co., 1602 Locust St., Zone 3, engrs. CD 4/25.

BUILDINGS—BA

▲ **Colo., Lakewood**—SCHOOL—BA 3/25—School Dist. No. R-1, 1580 Yarrow St., 1 story, 83,000 sq. ft. High School W. 24th Ave. and Pierce St., Edgewater, $1,130,000. Wheeler & Lewis, 2215 W. 32nd, Denver, engrs.-archts. CD 10/23/52, under Colo., Golden.

▲ **Tex., Houston**—OFFICE—Bids Asked—The Texas Co., 720 San Jacinto, (selected list of bidders) 16 story, bsmnt office $6,000,000. Kenneth Franzheim, 802 Lovett St., and Chas. S. Chase, Assoc. archt., 2317 Bissonnet St., archts.-engrs. CD 11/22.

BUILDINGS—SLC

Tex., Houston—HOTEL-MOTEL—Morin M. Scott, 103½ E. 7th St., Austin, soon lets contract hotel-motel $750,000-$1,500,000. Winfred O. Gustafson, 1312 A.S. Congress St., Austin, archt. Walter P. Moore, 2 Pinedale St., engr. CD 2/17.

HEAVY CONSTRUCTION—LB & CA

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul, Bids opened 2/21;
Minn.—**L. M. Feller,** Rochester, Minn., LB **$114,843** (5 bidders), Bridge No. 9214, 2.8 mi. northwest of Rochester, LB **$99,815** (6 bidders) Bridge No. 9271, 1.4 mi. northwest of Rochester, both in Olmsted Co.;
Minn.—**Korby Contg. Co.,** Fergus Falls, Minn., LB **$129,691** (8 bidders), Bridge No. 9233, 0.3 mi. east of Munger, St. Louis Co.;
Minn.—**Jardine Bridge Co.,** Fargo, N. D., LB **$81,747** (10 bidders), Bridge No. 9313 over Rabbit River, 5.4 mi. south of Doran, Wilkin Co.;
Minn.—**Ashbach Constr. Co.,** 1910 West County Rd., St. Paul, Minn., LB **$383,306** (6 bidders), bridge, approaches Br. No. 9395, incl. 0.2 mi. road-mixed bit. base, Lake Co.

▲ **MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul, Bids opened 2/21;
Minn.—**Fischer Constr. Co.,** Farmington, Minn., LB **$158,363** (12 bidders), grav. surf. 8.1 mi. between 5.7 mi. east of Effie and 10.4 mi. west of Togo, Itasca Co.; LB **$201,068** (10 bidders), grav. base and road mix bit. surf. 8.9 mi. between west of Ray and Ray, Koochiching Co.;
Minn.—**Megarry Bros.,** St. Cloud, Minn., LB **$358,713** (12 bidders), grav. sub-base 12 mi. between Kelliher and 4½ mi. south Washish, Beltrami Co.;
Minn.—**Duininck Bros. & Gilchrist,** Olivia, Minn., LB **$90,466** (5 bidders), base and plant mixed bit. surf. 0.6 mi. in Dawson, Lac qui Parle Co.;
Minn.—**Woodrich Constr. Co.,** Hopkins, Minn., LB **$713,506** (9 bidders), base, bit. surf. and concrete paving 5.6 mi. in and near Hibbing, St. Louis Co.;
Minn.—**Park Constr. Co.,** 51 37th Ave. N.E., Minneapolis, Minn., LB **$105,461** (8 bidders), base and plant mixed bit. surf. in Delano, Wright Co.;
Minn.—**Kimmes-Bartelma,** Hasttings, Minn., LB **$482,477** (15 bidders), grav. base and road-mixed bit. base 6.9 mi. between East jct. TH 12 and State Aid Road 19, Wright Co.;
Minn.—**Beatson & Kelly,** 1034 West California Ave., St. Paul, Minn., LB **$200,827** (10 bidders), constr. 1.3 mi. storm sewer 7,999 lin. ft. 12- to 42-in. pipe, St. Cloud. CD 2/6.

F. Morettini Constr. Co., 852 Westminster St., St. Paul, Minn., LB **$107,317** (11 bidders), constr. McAfee St.-Hoyt Ave. sewerage sys., ST. PAUL, MINN. City, O. P. Simon, Jr., purch. agt., 253 City Hall, St. Paul, Minn. Bids Feb. 18. CD 11/9/53.

C. L. Carroll Co., P. O. Box 1036, Des Moines, Iowa, CA **$161,316**, Contr. C-1, water treatment plant imprvs., CLARINDA, IOWA. City, c/o Walter Sales, clk., City Hall, Clarinda, Iowa. Bids Feb. 13. Awarded Feb. 17. CD 5/28;
Gee Constr. Co., Box 15, Shenandoah, Iowa, CA **$94,682**, Contr. C-2, transmission mains and intake access road (Clarinda, Iowa).

▲† **Martin K. Eby,** 610 N. Main, Wichita, Kan., CA **$5,117,192,** est. $5,881,329, spillway for Tuttle Creek Reservoir, 94,000 cu. yd. dirt, constr. 18 gates, bridge across spillway area for K-13, near Manhattan, ENG-23-028-58-25, KANSAS. U. S. Eng., Federal Office Bldg., Kansas City 6, Mo. Bids Feb. 4. CD 2/7, under LB.

Burt & Binford, 507 W. 2 St., Hutchinson, Kan., CA **$144,750,** sewage treatment plant, auxiliaries, appurtenances, HALSTEAD, KAN. City, City Hall, Halstead, Kan. Wilson & Co., 705 E. Crawford St., Salina, Kan., engrs. CD 4/29.

▲† **J. A. Jones Constr. Co.,** 209 West 4th St., Charlotte 1, N. C., LB **$5,051,174** (Base Bid), outlet works and spillway and completion of embankment, Oolagah Dam, Rogers Co., Inv. No. CIVENG-34-066-58-26, OKLAHOMA. U. S. Eng., Box 61, Tulsa 2, Okla. Bids Feb. 19. CD 2/13.

Lock-Joint Pipe Co., Turner, Kan., LB **$356,187,** Contr. 1, furnishing approx. 33,150 ft. 24 in. and 2,500 ft. 16 in. pipe, Hulah Lake Water System imprvs., BARTLESVILLE, OKLA. City, City Hall, Bartlesville, Okla. Bids Feb. 17. CD 2/7;

B & M Constr. Corp., First National Bank Bldg., Oklahoma City, Okla., LB **$165,862,** Contr. 2, install approx. 33,150 ft. 24 in., and 2,500 ft 16 in. pipe, Hulah Lake Water System imprvs. (Bartlesville, Okla.);
Freeto Co., Pittsburg, Kan., LB **$90,000,** contr. 3, Pump Station, 3 MGD, Hulah Lake Water System imprvs. (Bartlesville, Okla.)

▲† **Farnsworth & Chambers, Inc.,** 3601 Brock, Houston, Tex., LB **$2,281,000,** hospital and clinic, Tinker Air Force Base, ENG-34-066-58-13, OKLAHOMA CITY, OKLA. U. S. Eng., Box 61, Tulsa, Zone 2, Okla. Bids Feb. 26. CD 1/15.

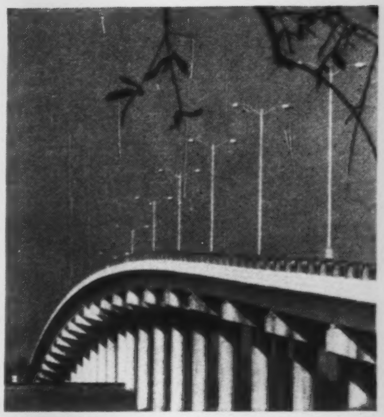
TEXAS—State Hy. Comn., Austin
R. B. Butler, Inc., P.O. Box 471, Bryan, Tex. CA **$651,115,** Trinity River Bridge and approaches 2.730 mi. Hy. SH 21, Proj. F 486 (5) Houston and Madison Counties. Bids Feb. 19, awarded Feb. 26. CD 2/25, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,
Tex.—**Strain Bros., Inc.,** P.O. Drawer 1631, San Angelo, Tex. CA **$513,390,** c. conc. 46.788 mi. Hy. FM 703, St. 82 and 115, Proj. 354-6-5, C 292-1-11, C 354-4-10, C 354-4-9, C 292-2-10, 354-1-14, C 354-4-8, Andrews and Winkler Counties;
Tex.—**Cooper & Woodruff, Inc.,** 204 Mays Bldg., Amarillo, Tex. CA **$942,997,** flex. base and c. conc. 14.443 mi. Hy US 87, 287, SH 354 and FM 1913 Proj. F 1069 (5) and S 2290 (1), Moore Co. Bids Feb. 19, awarded Feb. 26. CD 2/25, under LB.

TEXAS—State Hy. Comn., Austin, bids opened 2/18.
Q. L. James & Co., Inc. & R. W. McKinney, P. O. Box 531, Ruston, La. LB **$742,113** widen roadway and structures base and RM c. conc. 12.767 mi. Hy. SH 31, Proj. F 124 (7) Hill Co. CD 2/5.

City, City Hall, Abilene, Tex. Purchase and Hire. **$125,000,** street surf., repairing, ABILENE, TEX. Freese & Nichols, 407 Danciger Bldg., Fort Worth, Tex., engrs. CD 8/5.

Forest Park Cemetery c/o J. F. Eubank, 6900 Lawndale, Houston, Tex. Purchase and Hire. **$250,000** Unit No. 3 cemetery development, $250,000 Unit No. 4, cemetery development, HOUSTON, TEX. CD 6/24.



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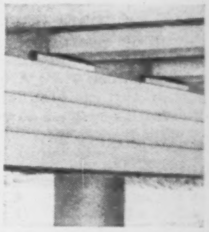

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† **Yuba Mfg. Division, Yuba Consolidated Industries, Inc.**, 675 E. H St., Benicia, Calif., LB **$231,950,** (9 bidders) Schedule 1, government design, two 144 in. butterfly valves for Fremont Canyon powerplant, with alternate schedules, Glendo unit, Missouri River Basin proj., DS-5006, WYOMING, Bureau Reclamation, Dpt. Interior, Denver Federal Center, Denver, Colo., Bids Feb. 20. CD 1/23;
American Ligurian Co., Inc., 55 W. 42 St., New York, N. Y., LB **$190,000** (4 bidders), Schedule 2, contractor design, two 144-in. butterfly valves, (Wyoming).

BUILDINGS—LB & CA

Adolfson & Peterson, 2817 Bryant Ave. South, Minneapolis, Minn., CA **$904,450** (12 bidders) general contract JUNIOR HIGH SCHOOL, WHITE BEAR LAKE, MINN. Bd. Educ., R. J. Hansen, supt., White Bear Lake, Minn. Bids Feb. 25. CD 1/28.

▲ **S. Patti Constr. Co.**, 1340 Admiral Blvd., Kansas City, Mo., CA Est. **$1,000,000,** 3 story, bsmnt., irregular shape, 50,000 sq. ft. granite, alum. flashing, cut stone, rein.-con. OFFICE, KANSAS CITY, MO. Old American Ins. Co., c/o Joseph J. McGee, chm., 1002 Walnut, Kansas City, Mo. Voskamp & Slezak, 18 E. 11 St., Kansas City, Mo., archts. CD 6/5.

J. S. Davis & Sons, 624 Towson St., Fort Smith, Ark. CA **$371,710,** CLASSROOMS and GYMNASIUM, FORT SMITH, ARK. St. Anne's Academy, Sisters of Mercy, N. 13th St., Fort Smith, Ark. Bids Nov. 20. CD 12/10, under LB.

Sampson Constr. Co., 1801 S. 9, Salina, Kan., CA **$332,200,** 1,000,000 bu. GRAIN ELEVATOR addn., consisting 34 cement concrete bins, COLBY, KAN. The Hi-Plains Co-operative Assn., Floyd Vernon, mgr., Colby, Kan.

M. Z. Collins, Box 2306, Austin, Tex. LB **$628,300** two 3 story wing addns. and addnl. story on west wing and air condition COURTHOUSE BLDG. AUSTIN, TEX. Travis Co. c/o Hon. Tom E. Johnson, co. judge, Austin, Tex. Bids Feb. 25. CD 2/12.

▲† **Centex Constr. Co., Inc.**, 4606 Greenville Ave., Dallas, Tex. LB **$3,396,000** 225-unit Capehart HOUSING to be located on 2 proposed sites in general vicinity of Beeville, incl. all utilities, landscaping, streets, sidewalks, driveways, and exterior electric distr. sys. etc. BEEVILLE, TEX. Dist. P. Wks. Office, 8th Naval Dist. Naval Station, New Orleans 40, La. Bids Feb. 7. CD 1/8.

Dolere Constr. Co., c/o Fred Novak, Jr., 602 Verne, Box 10027, Terrell Wells Station, San Antonio, Tex. Owner Builds. **$350,000,** 35 DWELLINGS in Dellcrest subdivision, SAN ANTONIO, TEX. De Verne Kittles, 523 W. Hildebrand, San Antonio, Tex., archt.

Maher Constr. Co., Route 3, Box 276, Aurora, Colo., LB **$258,937,** constr. HEATING PLANT, Adams State College, ALOMOSA, COLO. Adams State College, Alamosa, Colo. Joseph T. Wilson, 1240 W. Bayaud, Denver, Colo., archt.-engr. Bids Feb. 20. CD 12/19/51.

▲ **Ragnar Benson, Inc.**, 4744 West Rice St., Chicago 51, Ill. and Colorado Springs, Colo., CA **$1,000,000,** design and construct 35,000 sq. ft. OFFICE BLDG., COLORADO SPRINGS, COLO. Farmers Insurance Group, 3500 N. Nevada Ave., Colorado Springs, Colo. CD 2/19.

FAR WEST

HEAVY CONSTRUCTION—BA

† **Utah, Hill Air Force Base**—DORMITORIES, etc.—BA 3/26—U. S. Eng., 180 New Montgomery St., San Francisco, Calif., two airmen dormitories and service club, ENG-04-203-58-318. Extended date. CD 2/17.

▲† **California**—BA 3/27—U. S. Eng., 751 S. Figueroa St., Los Angeles, imprv. Santa Anita Wash Channel from Atchison, Topeka, Santa Fe R.R. to Rio Hondo Channel, ENG-04-353-58-15. $1,400,000. CD 10/24.

▲† **Calif., Lompoc**—AIR BASE REHABILITATION—BA 3/27—U. S. Eng., 751 S. Figueroa St., Los Angeles, rehabilitation, Phase 3, FY 58, Cooke Air Force Base, ENG-4-353-58-52. $1,500,000. CD 3/5/57.

† **Arizona**—BA 4/1—Bureau Reclamation, Dpt. Interior, Denver Federal Center, Denver, Colo., furnishing 222,000 tons pozzolan in bulk for Glen Canyon Dam and power plant, Colorado River Storage Proj. Inv. DS-5012. Extended date. CD 1/20.

† **Washington**—BA 4/1—Bureau Reclamation, Dpt. Interior, Ephrata, constr. farm bridge at Station 91 plus 40 of DE79 drain, Block 46, Columbia Basin Proj., No. 117C-502. CD 9/10/56.

† **Wash., Tacoma**—OFFICERS QUARTERS—BA 4/3—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, 2 story, 43 x 167 ft. officers quarters with two 1 story, 43 x 62 ft. masonry wings for SAGE support facilities, McChord Air Force Base, ENG-45-108-58-80. CD 9/16.

▲† **California**—Bids Asked—The Southern California Edison Co., 501 W. 5 St., Los Angeles (selected list of bidders) 4½ mi. seawater canal from Port Hueneme Harbor to Mandalay Oxnard Beach steam station, $3,500,000.

BUILDINGS—BA

▲ **Wash., Tacoma**—SCHOOL—BA 3/20—Franklin Pierce School Dist. 402, S. 112 and Portland St., 80,000 sq. ft. frame Junior High School, $1,000,000, Plans deposit $35. Lee, Parson & Richards, 240 Stadium Way, archts. CD 12/4.

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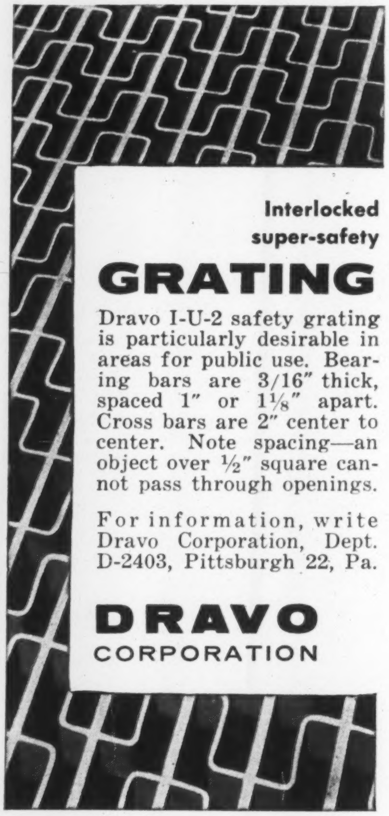

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▲ **Calif., Riverside**—NURSING UNIT, etc.—BA 4/7—Bd. Supervs. Riverside Co. Courthouse, Riverside, 4 story nursing unit, kitchen and administrative unit at Riverside Co. General Hospital, 19851 Magnolia Ave., $2,500,000. Plans deposit $100. Herman O. Ruhnau, Mission Inn., Rotunda, Riverside, archt. CD 4/24/56.

BUILDINGS—SLC

▲ **Calif., San Bernardino**—HOSPITAL—I. E. Loveless, archt., 102 S. Robertson Bldv., Beverly Hills, soon lets contract, 6 story, full bsmnt. 57,875 sq. ft. rein.-con. SE wing addn. to hospital for St. Bernardine's Hospital, San Bernardino. $1,000,000. CD 2/4.

HEAVY CONSTRUCTION—LB & CA

Selby Drilling Co., 319 Broadway Ave., Boise, Idaho, CA **$739,658**, constr. 1,500 grout cutoff on east bank side of Rocky Reach hydro dam, WASHINGTON. Chelan County Public Utility Dist., Wenatchee, Wash. Bids Feb. 5. CD 2/13.

H. Kaeser Co., 3629 34 Ave. S., Seattle, Wash. LB **$339,126**. (4 bidders), 6- to 36-in. sewers, Schedule N, SEATTLE, WASH., Southwest Suburban Sewer Dist., 864 S.W. 136 St., Seattle, Wash. Bids Feb. 24. CD 12/31/56;
Murphy Bros., E. 3728 Broadway, Spokane, Wash. LB **$315,360**. (6 bidders), 6- to 36-in. sewers, Schedule M (Seattle, Wash.).

▲ **CALIFORNIA**—Dpt. Hys., 1120 N. St., Sacramento,
Rothschild, Raffin & Weirick, 274 Brannan St., San Francisco, Calif. CA **$1,053,446** constr. connecting ramp structures between existing Carquinez Bridge and new freeway approach now being built and widening and resurf. roadway on present Carquinez Bridge and imprv. hy. between north end of existing bridge and toll plaza, Solano and Contra Costa Counties. Bids Feb. 19, awarded Feb. 27. CD 2/24, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles, Bids opened 2/27.
Vinnell Co., Inc., 1145 Westminster Ave., Alhambra, Calif. LB **$7,157,916**, est. $9,200,000. (11 bidders), 3.1 mi. freeway and 17 structures on Golden State and San Bernardino Freeways, between 6th and North of Mission Rd. on Golden State and between Macy and Fickett Sts. on San Bernardino, incl. extensive traffic separation and interchange facilities at Jct. of 2 freeway Rtes. east of Los Angeles Civic Center, V11-4, 26 LA, Los Angeles Co. CD 1/23.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento, Bids opened 2/26,
Ball & Simpson, 685 Delaware St., Berkeley, Calif. LB **$1,814,527**. (10 bidders), grading, surf. 2.8 mi. 4 lane expressway on new alignment on US Hy. 101 between 0.2 mi. north of Farmhouse Inn and 1 mi. north of Tan Oak Park. I-Mem-1, 1, Mendocino Co. CD 1/30.

Peletz Constr. Co., 475 W. College Ave., Santa Rosa, Calif. CA **$205,800** water treatment plant and 1½ m.g. steel reservoir, FORT BRAGG, CALIF. City, City Hall, Fort Bragg, Calif. CD 3/21/57.

† **Wm. H. McDevitt Co.**, 1934-4th St., San Rafael, Calif., LB **$241,395** (3 bidders) chapel educational wing, site development, electric, gas, water and sewer installation, parking, ENG-58-309, HAMILTON AIR FORCE BASE, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Feb. 19. CD 1/21.

† **H. E. Rudd Constr. Co.**, 2410 W. Carson St., Torrance, Calif. CA **$418,711** constr. electric accounting bldg. Naval Constr. Battalion Center, NBy 9985 (IFB 9985/56B) PORT HUENEME, CALIF. Dist. P. Wks. Office, Eleventh Naval Dist., San Diego 32, Calif. CD 8/28/56.

† **Baldwin Contg. Co.**, 9th and Yuba Sts., Marysville, Calif. LB **$746,900** est. $755,450 (8 bidders) airmen dormitories, incl. utilities at Mather Air Force Base, Spec. 2371, ENG-04-167-58-19, SACRAMENTO, CALIF. U. S. Eng., 1209 8th St., Sacramento, Calif. Bids Feb. 28. CD 1/31.

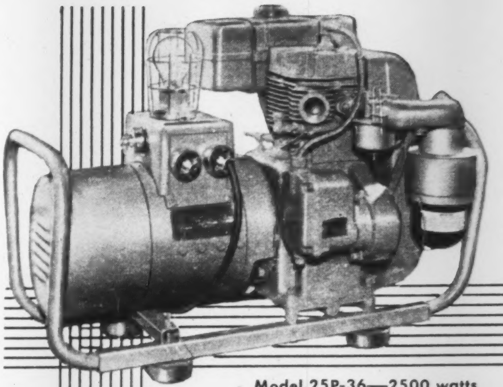
† **Pacific Bridge Co.**, 256 Montgomery St., San Francisco, Calif. LB **$426,967**, est. $500,000-$1,000,000. (10 bidders), rehabilitate Pier J-K, Naval Air Station, North Island, Spec. 14896-57, SAN DIEGO, CALIF. Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif. Bids Feb. 20. CD 9/17.

BUILDINGS—LB & CA

▲† **Hebb & Narowdick & Assocs.**, 232 4 Ave. N., Seattle, Wash. LB **$1,515,921**. (4 bidders), Schedule A, 108 units Capehart HOUSING, Inv. 58-48; LB **$5,851,744**, (4 bidders), Schedule B, 267 units Capehart HOUSING, FORT LEWIS, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Feb. 26. CD 1/23.

Murray Constr. Co., W. Columbia Ave., Kennewick, Wash., LB **$728,037** (12 bidders), general contract 1 story, 77,350 ft. masonry JUNIOR HIGH SCHOOL, KENNEWICK, WASH. School Dist. 17, Kennewick, Wash. Bids Jan. 21, awarded Feb. 20. CD 1/29.

▲ **Donald M. Drake Co.**, 1600 Northwest Savier St., Portland, Ore. LB **$14,163,868**. Combined Bases Bid, Lloyd SHOPPING CENTER BLDGS. LB **$4,890,000**, Meier & Frank DEPARTMENT STORE, plus two MULTI-TENANT BLDGS., PORTLAND, ORE. Lloyd Corp. Ltd., 720 N.E. 12th St., Portland, Ore. Bids Feb. 27. CD 1/2;
Max J. Kuney, N. 120 Ralph, Spokane, Wash. LB **$4,000,000**. constr. three-level J. C. Penney and Woolworth BLDGS. and two-level BLDGS., (Portland, Ore.);
Carl M. and H. Halvorson, 10626 S.W. Pac. Hy., Portland, Ore. LB **$4,287,717**. constr. three-level



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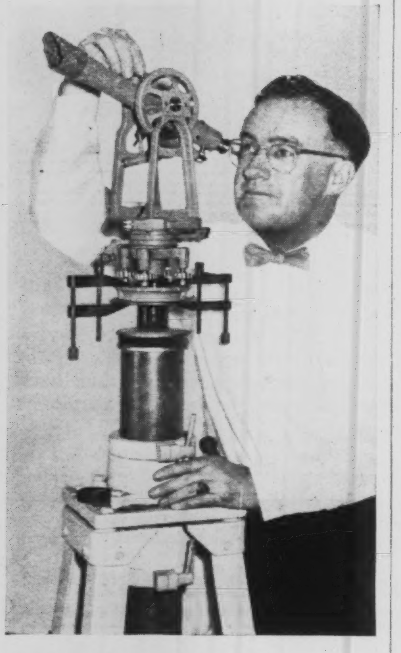

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J. J. Newberry BLDG. and adjacent three-level and two-level BLDGS., (Portland, Ore.);
Henry Mason, 2206 Northwest Thurman St., Portland, Ore. LB **$439,206.** constr. fourth unit, Safeway STORES SUPERMARKET, (Portland, Ore.).

Mayers Bros. & Brummet & Demblom, 210 S. Garfield Ave., Monterey Park, Calif. CA **$500,000**, FACTORY, 3360 E. Foothill Blvd., East Pasadena, ALTADENA, CALIF, Sturart Co., 3360 E. Foothill Blvd., Pasadena, Calif. Awarded Feb. 19.

Larsen-Ratto Constr. Co., 1901 Hedges Ave., Fresno Calif. CA **$410,803**, frame, stucco JUNIOR HIGH SCHOOL, BARSTOW, CALIF. Barstow Union High School Dist., Barstow, Calif. Bids Jan. 17, awarded Feb. 21. CD 1/29, under LB.

G. M. Slumpker, 11012½ Lakewood Ave., Lakewood, Calif., CA **$800,000**, 63,100 sq. ft. masonry retail SALES BLDG., 9101 E. Firestone Blvd., LAKEWOOD, CALIF. Stonewood Co., 11012½ Lakewood Ave., Lakewood, Calif., awarded Feb. 25.

† **Campbell Constr. Co.**, 800 R St., Sacramento, Calif. LB **$250,950** (8 bidders) DEVELOPMENT SHOP at solid Rocket Plant, also grading, for paved areas, Spec. No. 5116, NIMBUS, CALIF. Aerojet-General Corp., Engrg. Div., 10687 Folsom Rancho, Cordova, Calif.

Slattebo Corp., 5175 W. Washington Blvd., Los Angeles, Calif. LB **$567,890**, est. $570,000 (9 bidders) Jefferson, Lincoln and Tulita SCHOOLS, Ridge Lane SCHOOL Addns. REDONDO BEACH, CALIF. Redondo Beach City School Dist., 115 S. Francisca Ave., Redondo Beach, Calif. Bids Feb. 25. CD 2/12.

Mr. Putnam Henck, 3947 Sierra Way, San Bernardino, Calif. LB **$369,648** (6 bidders) 31,000 sq. ft. steel, frame, stucco Highland Elementary SCHOOL, RIVERSIDE, CALIF. Riverside City School Dist., 3954 12th St., Riverside, Calif. Bids Feb. 21. CD 2/14.

Pepper Dr., Inc., 168 Rea St., San Bernardino, Calif. Owner Bulids. **$521,152**, 51 stucco DWELLINGS, Mollison Ave. and Pepper Villa Dr., SAN BERNARDINO, CALIF.

▲ **F. E. Young Constr. Co. and Morrison-Knudson Co.**, P.O. Box 2872, San Diego, Calif., CA **$8,866,667**. 7 story 400,000 sq. ft. COURTHOUSE and JAIL "B" St. and Broadway, SAN DIEGO, CALIF. Bd. Supervs., San Diego Co. Courthouse, Civic Center, 1600 Pacific Hy., San Diego, Calif. Bids Feb. 18, awarded Feb. 25. CD 2/25, under LB.

▲ **William D. Greschner**, 1108 E. Washington Ave., Santa Ana, Calif. CA **$1,385,400** 1 story, 76,000 sq. ft. masonry, concrete block JUVENILE HALL, SANTA ANA, CALIF. Orange Co. Employees Retirement Sys., Courthouse, Santa Ana, Calif. Bids Feb. 17, awarded Feb. 20. CD 2/24, under LB.

Slattebo Corp., 5175 W. Washington Blvd., Los Angeles, Calif. LB **$493,750** (15 bidders) Jefferson Elementary SCHOOL, Carson and Talisman Sts., TORRANCE, CALIF. Torrance Unif. School Dist., 2335 Plaza Del Amo, Torrance, Calif. George F. Schreiber, 9047-K E. Florence Ave., Downey, Calif., archt. Bids Feb. 14. CD 9/27.

Ukiah Union High School Dist., c/o Supt., Ukiah, Calif., rejected bids Jan. 28, 43,500 sq. ft. Ukiah HIGH SCHOOL, UKIAH, CALIF. LB **$636,000.** CD 2/5, under LB.

Southwood Constr. Co., 2918 W. Compton Blvd., Gardena, Calif. Owner Builds. **$514,800**, forty-two 1256 sq. ft. each frame, stucco DWELLINGS lots 186-227 tr. 2320 **$387,000;** thirty 1,256 sq. ft. each frame, stucco DWELLING, Lot 132-261, Tr. 2320, WESTMINISTER, CALIF.

T. C. Bowles, 8941 Santa Monica Blvd., Los Angeles, Calif., Owner Builds. **$529,996** fifty-two 1,100 sq. ft. frame, stucco DWELLINGS, Lots 81-172, Tr. 2524 WESTMINISTER, CALIF.

Frederick J. Chapek & Dorville, Gallino & Kohler, 2917 T St., Sacramento, Calif. LB **$359,359** joint venture (7 bidders) Yuba City HIGH SCHOOL addn., YUBA CITY, CALIF. Yuba City Union High School Dist., c/o Supt., Yuba City, Calif. Bids Feb. 18. CD 2/5.

CANADA

HEAVY CONSTRUCTION—BA

▲ **Que., Three Rivers**—WHARF EXTENSION—BA 3/20—National Harbors Bd., West Block, Parliament Bldgs., Ottawa, Ont., wharf extension at Section 20, Three Rivers Harbor, $1,000,000. CD 10/16/56.

BUILDINGS—BA

Ont., Kingston—STORES, etc.—BA 3/25—Department Justice, Penitentiaries Branch, Justice Bldg., Ottawa, Stores Bldg. No. 9 and Maintenance Shop Bldg. No. 10, New Eastern Penitentiary site, 10 mi. NE of here, Over $350,000. Plans deposit, $75. Lt. Col. R. W. Catto, c/o owner, ch. engr.

▲ **Newfoundland, St. John's**—HOSPITAL—BA 3/26—St. John's General Hospital Bd., St. John's, superstructure for two hospital wings; **(a)** 50 x 150 ft., **(b)** 50 x 135 ft., both wings to have steel frame, steel, brick. $1,500,000. Fleming & Smith, 1235 McGill College Ave., Montreal, Que., archts. Plans deposit $50. CD 1/29/57.

HEAVY CONSTRUCTION—LB & CA

▲ **Foundation Maritime Ltd.**, 1900 Sherbrooke St. W., Montreal, Que., CA **$1,276,063**, constr. marine agency wharf, comprising 7 rein.-con. cribs, concrete gravity wall, steel sheet piling retaining wall with timber crib work, for Dpt. Transport, SAINT JOHN'S, N. B. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Feb. 5, awarded Feb. 24. CD 2/12, under LB.

▲ **A. Janin & Co., Ltd.**, 1460 Sherbrooke St. W., Montreal, Que., CA **$1,582,775**, constr. 5th section, Decarie-Raimbault Collector Sewer, between Metropolitan Blvd. and Vezina St., MONTREAL, QUE. City of Montreal, City Hall, Montreal, Que. Bids Jan. 15, awarded Feb. 25. CD 1/22, under LB.

J. D. Stirling Ltd., 940 Cote de Liesse Rd., Montreal, Que., LB **$834,524**, tunnel under Canadian Pacific Railway Tracks, at Masson St. between Iberville and Delorimier Aves., MONTREAL, QUE. City, City Hall, Montreal, Que. Bids Feb. 17, CD 1/24/58.

BUILDINGS—LB & CA

▲ **Newman Bros., Ltd.**, 4A Clark St., St. Catherines, Ont., CA Approx. **$6,000,000**, 600-bed SENILES BLDG, MENTAL HEALTH CLINIC, ACUTE TREATMENT and ADMIN. BLDG., HAMILTON, ONT. Ontario Dpt. P. Wks., Parliament Bldgs., Toronto, Ont. Bids Feb. 12, awarded Feb. 19. CD 1/13.

John L. Ennis Co. (Ontario) Ltd., 970 Eglinton Ave. E., Toronto, Ont., Owner Builds. **$600,000**, two 4 story 62x77 ft., masonry bearing walls, steel joists 35-suite each, APARTMENT BLDGS., Victoria Park Ave., TORONTO, ONT. Bregman & Hamann, 7 Adelaide St. E., Toronto, Ont., archt. Farkas & Barron of Canada Ltd., 7 Adelaide St. E., Toronto, Ont., engrs.

A. Boisjoly & Fils, c/o Jean B. Chicoine, archt., 5669 De Lorimer Ave., Montreal, Que., Owner Builds, **$350,000**, 4 story, bsmnt., 40-suite brick walls 1 APARTMENT, concrete fdn., Place Darlington, MONTREAL, QUE.

Continental Housing Corp., 3855 Langelier St., Montreal, Que. Owner Builds. **$625,000**, HOUSING PROGRAM, Radisson and Des Groseilliers Sts., MONTREAL, QUE. Olius P. Bois, 10649 Grande Allee, Montreal, Que., archts.

▲ **Persillier Homes, Inc.**, c/o Lazar & Sterlin, archts., 940 Cote de Liesse Rd., Montreal, Que., Owner Builds, **$1,700,000**, APARTMENT and TRIPLEX DEVELOPMENT, Persillier and Salaberry Sts. area, MONTREAL, QUE.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Mo., Gladstone**—Clay County Water Dist. No. 1, Box 128, water pumping station, treatment plant and other facilities, Gladstone and Claycomo. **$1,400,000**. E. I. Myers, Law Bldg., Kansas City., Mo., engr.

▲ **O., Campbell**—City, City Hall, water treatment plant across street from present plant. **$1,176,000**. Floyd G. Browne & Assocs., 125 W. Church St., Marion, consult. engrs.

SEWERS, WASTE DISPOSAL

▲ **Idaho, Pocatello**—City, City Hall, voted bonds Feb. 18, sewage treatment plant and lay addnl. sewer lines. **$1,250,000**. CD 11/20.

▲ **Ill., Moline**—City Council, sewage treatment plant, sewage ejector stations, trunk and interceptor sewers, lateral sewers, **$2,000,000**. Stanley Eng. Co., Muscatine, Iowa., consult. engr. To go ahead 1958. CD 1/6/47. .

▲ **Ky., Ashland**—City, sewerage facilities, incl. sanitary interceptor sys., pumping station, force mains and treatment facilities. **$3,750,000**.

▲ **Mich., Flint**—City, Harold C. Chirgwin, mgr., bond election Apr. 8, storm and sanitary sewers, sewage pumping station, **$1,230,000**.

▲ **N. H., Littleton**—Town, Town Hall, sanitary and storm waste sewerage and sewage treatment facilities **$1,924,000** Camp, Dresser & McKee, 6 Beacon St., Boston 8, Mass., consult. engrs. Constr. 1959.

▲ **N. J., Newark**—City, City Hall, constr. South Side Interceptor Sewerage Sys. **$5,100,000**, Elson T. Killiam Assocs., Inc., 529 Millburn Ave., Millburn, consult. engr. CD 11/14.

▲ **O., Cleveland**—Comrs. Cuyahoga Co., Court House, Zone 13, sewage treatment plant and sewers, **$1,709,000**. Final estimates now being readied and plan on taking bids this Spring. Willard Schade & Assocs., Chester-12th Bldg., Zone 14, consult. engrs. John Puzenski, c/o owner, county sanitary engr.

▲ **Wash., Everett**—City, City Hall, exten. sewerage sys. **$3,000,000**. Gray & Osborne, 228 S. 2 St., Yakima, consult. engrs. Work may start this year. CD 11/7.

▲ **Sask., Regina**—City, City Hall, pumphouse at city's sewage plant. **$1,000,000**. Underwood, McLellan & Assocs., Ltd., Saskatoon, consult. engrs. Bids about Apr. 1.

BRIDGES

▲ **Mich., Flint**—City, Harold C. Chirgwin, mgr., bond election Apr. 8, bridge and widening another. **$1,550,000**.

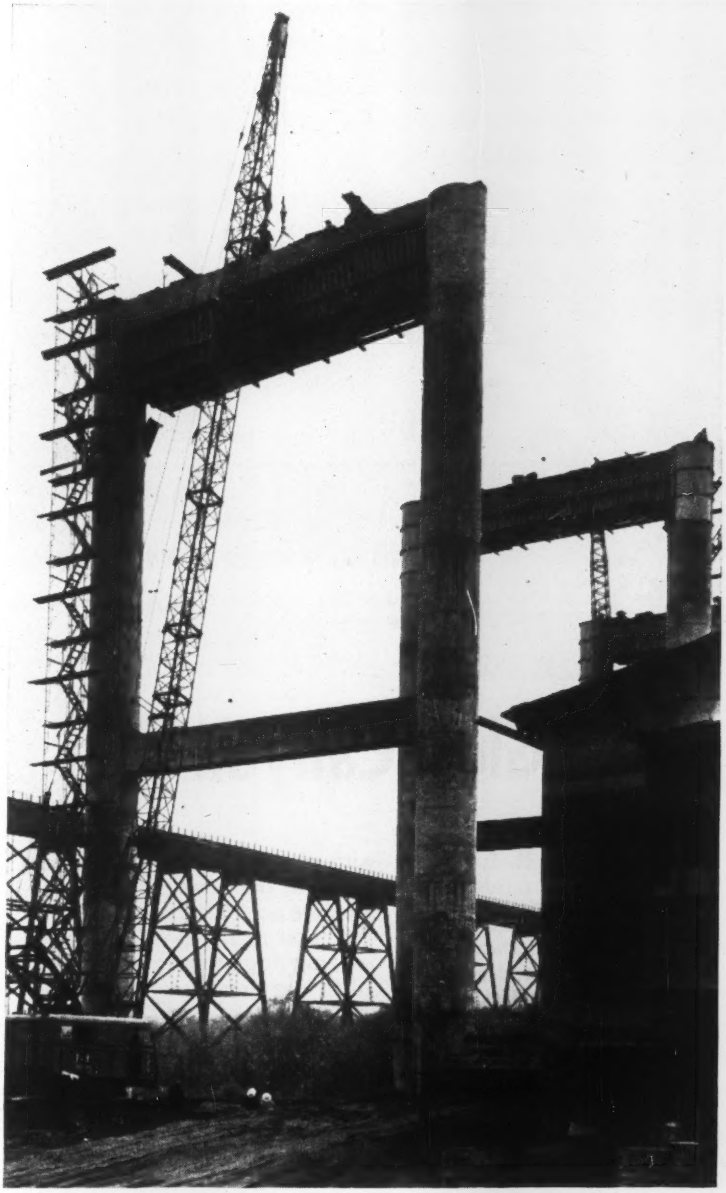
▲ **NEW YORK**—State P. Wks. Dpt., The Gov. Alfred Smith State Office Bldg., Albany,
Nassau Co.—elimination of 4 Long Island R. R. grade crossings: 2 on Plainfield Ave. and one each on Carnation and Tulip Aves. **$10,000,000**. CD 12/15/43. Bids in August.

▲ **O., Toledo**—City, City Hall, railroad grade separation at Sylvania Ave. & N.Y.C. R.R. tracks, **$2,000,000**. CD 9/25/46.

▲ **SASKATCHEWAN**—Dpt. Hys., Parliament Bldgs., Regina,
Prince Albert—four-lane bridge across North Saskatchewan River. **$2,500,000**. Federal govt. has offered to pay half of the cost, with the province and city of Prince Albert sharing second half. CD 9/24/51.

(Continued on page 99)

Blaw-Knox Steel Forms cut costs on 135-foot high bridge piers, were used without falsework



22-ton steel cap form hoisted into place by crane with 160-ft. boom. Blaw-Knox Steel Forms were re-used an average of 27 times on the project. Note the absence of falsework and cross girders.

When Johnson-Kiewit, joint-venturers on the new mile-long Hudson River Bridge south of Albany, were faced with the construction of 42 concrete piers they chose Blaw-Knox Steel Forms for a fast, economical job. To form the pier columns, they used 320 lineal feet of 8-ft. diameter column forms fabricated in 5-ft. lengths by 180-degree segments.

As pouring progressed, the forms were supported on the work by special anchor bolts cast into the concrete. After a 20-ft. lift was complete, the form assembly bolts were loosened along the vertical joints and the form was hoisted to rest on the previously set anchor bolts. This operation was repeated as the columns were built up.

Strut forms for intermediate and cap beams weighing 22 tons were lifted into place by crane and supported entirely on the work. This required a variation of the standard column form which was equipped with a collar on which the beam form rests. These forms were anchored to concrete with 1½ in. bolts and special Blaw-Knox-developed shear blocks to transmit the heavy loads to the concrete columns. This arrangement framed into the end of the strut form so that the column and strut were poured monolithically.

Throughout the project, designed by Madigan-Hyland, the need for expensive cross girders to support the heavy strut and cap forms was eliminated. The Blaw-Knox Steel Forms, easy to set and strip, made possible as many as 27 re-uses.

No matter what your concrete project, bridges, dams, tunnels, sewers or prestress units, it will be to your profit to contact the Blaw-Knox Steel Form Consultation Service. There is no obligation. Contact us early in your planning for a profit-building engineering contribution.

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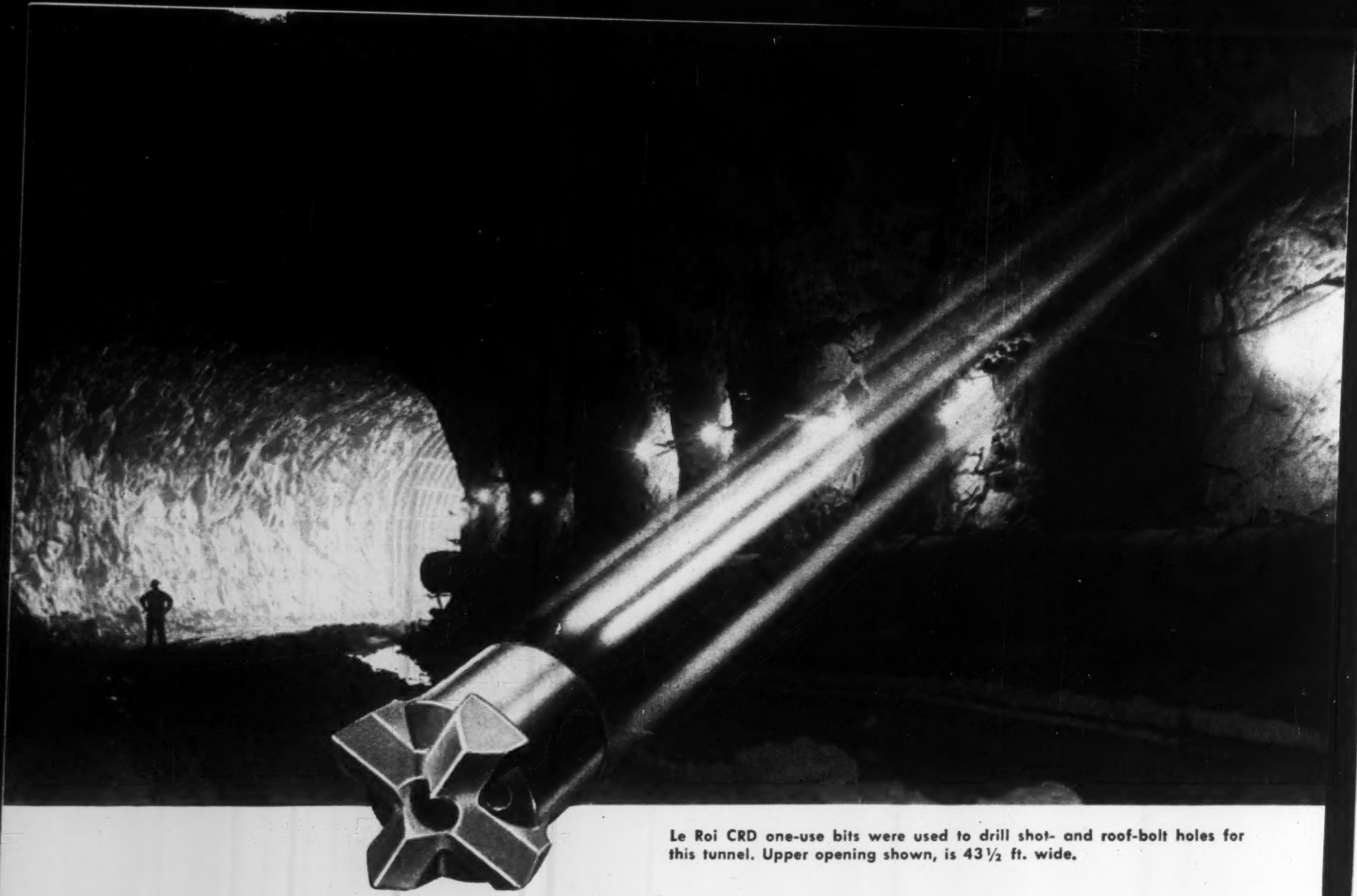

Le Roi CRD one-use bits were used to drill shot- and roof-bolt holes for this tunnel. Upper opening shown, is 43½ ft. wide.

Only CRD Bits Meet Glen Canyon Test

"The CRD one-use bit was superior to any of the ten brands we tested," reports superintendent.

Maintain 15 ft. daily pace through solid sandstone.

Pre-job tests revealed that the Le Roi CRD one-use bits offered the best cost-output advantages for the grueling job ahead. That's why they were chosen to drill two spillway tunnels through solid sandstone for the Glen Canyon Dam in Utah.

Here's how they scored. "Drilling in this sandstone," the tunnel superintendent reports, "the CRD bits averaged 48 ft., compared to an average of only 32 ft. for the other nine competing brands."

"Some bits were a little more durable," he adds. "But they cost up to $12 each, compared to the 24 cents we pay for each CRD bit."

Carbide bits were also tried, but proved impractical. The sand encountered on the job was as abrasive as the grinders used to sharpen the bits, causing them to lose their gauge too quickly.

Help Keep Schedule

On the job, the Le Roi bits are living up to expectations. "We use them to drill shot holes under the roughest conditions I've ever seen," the superintendent states.

In addition to the highly abrasive stone, the bits have to cope with mud and bad water seepage. Yet the bits average 4 to 4½ minutes per 18 ft. hole. As a result, "the first of the two long tunnels is being dug at an average rate of 15 ft. per day."

Le Roi H10AL air legs are used with the CRD one-use bits and comprise 95% of the drilling equipment used on the job. "The Le Roi units are doing a good job for us in the tunnel, helping us to keep the project on schedule," the superintendent concludes.

Investigate the advantages of low-cost Le Roi one-use bits for your next drilling job. Ask your Le Roi distributor about them, or write direct to Le Roi Division, Westinghouse Air Brake Co., Milwaukee 1, Wisconsin. AT-723

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LE ROI Division of Westinghouse Air Brake Co., Milwaukee 1, Wisconsin, manufacturers of Newmatic air tools, Tractair,® portable and stationary air compressors, and heavy-duty industrial engines. Write us for information on any of these products.

(Continued from page 96)

STREETS AND ROADS

▲ **Iowa, Harlan**—Bd. Supervs., Shelby Co. grading, rock surf. 48 mi., 7 bridges, **$1,200,000**, B. H. Backland & Assocs., 4924 Poppelton St., Omaha, Neb., consult. engrs. E. McKeown, co. engr.

▲ **Mich., Flint**—City, Harold C. Chirgwin, mgr., bond election Apr. 8, street paving (9 streets), **$1,170,000**. CD 2/19.

▲ **SOUTH DAKOTA**—State Dpt. Hys., Pierre,
Minnehaha Co.—grading, concrete paving, 8 structures Interchange I 29 from 10th St. to I 93 south of Sioux Falls, FAI. **$6,500,000**. Tecon Co., Inc., 314 Wilkinson, Frankfort, Ky., consult. engrs. CD 2/13.

▲ **QUEBEC**—Provincial Dpt. Roads, Parliament Bldgs., Quebec City,
Talbot—complete Junction Blvd. Jonquiete and Talbot **$1,000,000**.

EARTHWORK, WATERWAYS

▲ **Washington**—Klickitat Co. Public Utilities Dist., Goldendale, 2 storage dams on White Salmon River to provide water for 6 powerhouses, **$48,500,000**.

AIRPORTS

▲† **Calif., Sacramento**—AIR BASE IMPRVS.—U. S. Eng., 1209 8th St., hangar, covering 83,576 sq. ft. to house electronics and radar equipment, McClellan Air Force Base, **$2,700,000**, Bids in Spring 1959; air reserve hangar, 35,525 sq. ft. and 10,000 sq. ft. leanto wings on either side at McClellan Air Force Base, **$3,000,000**, Bids in fall 1958. Tudor Eng. Co., 74 N. Montgomery St., San Francisco, engr. Aircraft hydrant fueling sys. at McClellan Air Force Base, incl. large pump house, four 50,000 gal. tanks and transfer pump house. **$345,000**. Bids in June. Coddington Co., 355 Stockton St., San Francisco, engr. CD 9/19.

▲† **Mass., Chicopee Falls**—AIRFIELD IMPRVS.—U. S. Eng., 150 Causeway St., Boston, airfield pavements, Westover Air Force Base. **$1,000,000-$2,000,000**. Joseph L. Paley, 1-5 Newbury St., Boston, Mass., engrs. Bids in **May**. CD 9/17.

▲† **Alaska**—REFUELING FACILITIES, etc.—U. S. Eng. Anchorage, jet hydrant refueling facilities, **$1,000,000**; primary runway, **$2,500,000**, Eielson Air Force Base. Bids in April.

PUBLIC BUILDINGS

▲ **Calif., Arcadia**—SCHOOL—Arcadia Unif. School Dist., 111 W. Duarte Rd., defeated **$3,885,000** bonds Feb. 11 Junior High School, on 17½ acre site, conversion 1st Ave. and Dana Schools to 6 room Junior High at Highland Oaks School, District Library and 1st Admin. Bldg. CD 1/6.

▲ **Calif., Auburn**—SCHOOL—Placer Union High School Dist., 100 Agard St., plans by Lawrence G. Thompson, 325 W. 3 St., Chico, Del Oro High School, **$1,170,000**. CD 4/17.

▲ **Calif., Hemet**—SCHOOLS—Hemet School Dist., defeated **$1,100,000** bonds Feb. 18, 2 schools. CD 1/7.

▲ **Calif., Los Altos**—JUNIOR COLLEGE—Foothill Junior College Dist., c/o Bd. Trustees, 176-2nd St., bond election May 20, 400,000 sq. ft. on 100 acre site. **$10,000,000**.

▲ **Calif., National City**—SCHOOLS—Sweetwater Union High School Dist., 2900 Highland, voted bonds Feb. 4 schools. **$2,700,000**. CD 1/26/54.

▲ **Calif., Oakland**—SCHOOL—Oakland City Unif. School Dist., c/o Supt., 1025-2nd Ave., plans by Mitchell Van Bourg, Clarement Hotel, Suite A, Berkeley, 1 story, frame, stucco Sobrante Park Junior High School. **$1,000,000** Haluk Akol, 2171 Shattuck Ave., Berkeley, structural engrs. CD 6/8/56.

▲ **Calif., Orangevale**—SCHOOL—Orangevale Union Elementary School Dist., P. O. Box 1, voted bonds Feb. 18, school in Northridge Hills area, **$1,000,000**. CD 1/8.

▲ **Calif., San Jose**—SCHOOLS—San Jose Unified School Dist. c/o Supt., 408 Almaden, voted **$11,557,000** bonds Feb. 18, schools and school addns., incl. San Jose Junior College. CD 11/18.

▲ **Conn., Newton**—SCHOOL—Town, Town Hall, plans by Fletcher-Thompson, Inc., archt.-engr., 211 State St., Bridgeport, and J. Gerald Phelan, consult. archt., 211 State St., Bridgeport, Junior High School. **$1,000,000**. CD 3/29.

▲ **Conn., West Hartford**—SCHOOL—Town, Town Hall, plans by Warren H. Ashley, 726 North Main St., const. North End High School, south of Wampanoag Country Club, west of North Main St. **$5,000,000**. Robert Loomis, 32 Maple Ave., Windsor, structural engr. Fred S. Dubin Assocs., 178 S. Whitney St., Hartford, mechanical engrs. CD 2/4.

▲ **Ill., Chicago**—SCHOOL—Chicago Bd. Educ., 228 N. LaSalle St., plans by Shaw Metz & Dolio, 208 S. LaSalle St., 2 story brick, elementary school, Central Park and 5th Ave. **$1,470,000**. CD 6/11.

▲ **Ill., Chicago**—SCHOOL—Chicago Bd. Educ., 228 N. LaSalle St., plans by Skidmore Owings & Merril, 100 W. Monroe St., 2 story, brick, Albert Einstein Elem. School, 38th St. and Cottage Grove. **$1,250,000**. CD 6/11.

▲ **Ill., Chicago**—APARTMENTS—Chicago Housing Auth., 608 S. Dearborn St., plans by Graham Anderson Probst & White, 201 N. Wells St., 9 apartment bldgs. and 9 row house bldgs., 1,296 units; apt. bldgs. 1,196

(Continued on page 102)

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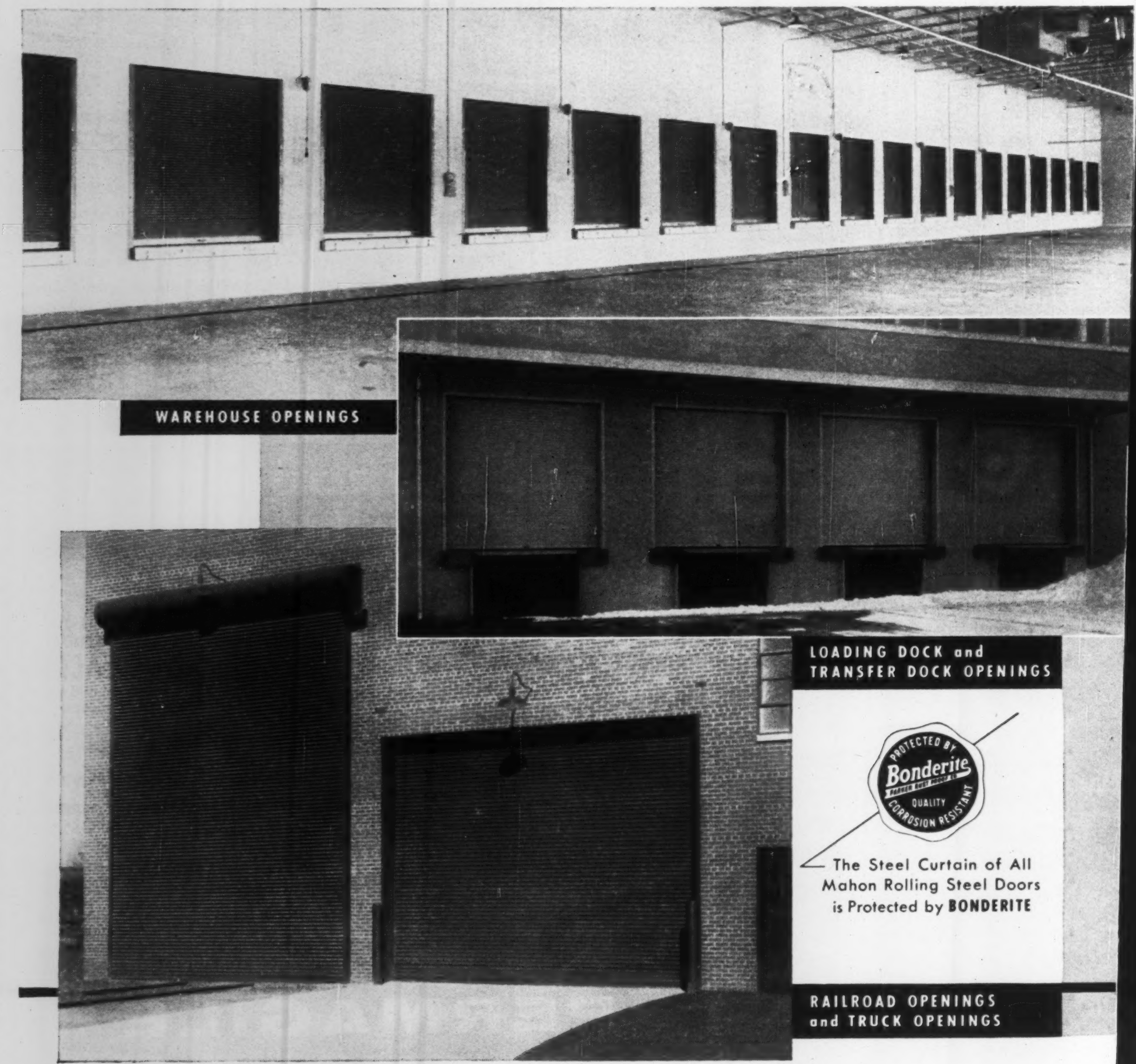

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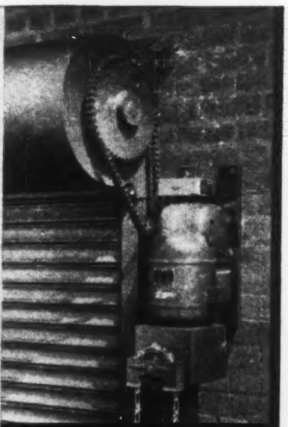

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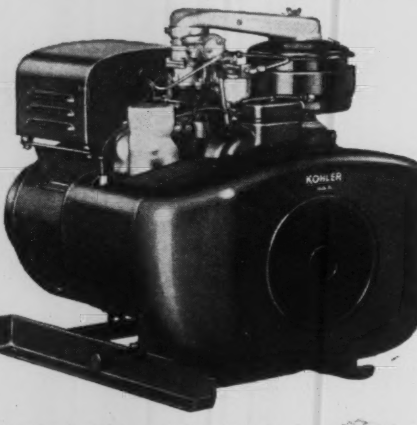
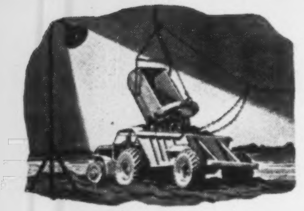

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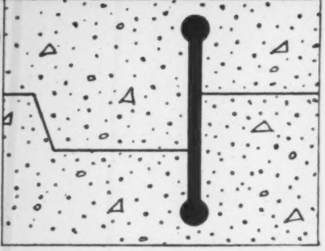

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(Continued from page 99)

units, 43rd St. to 51st St. and State, **$10,000,000**. CD 10/11.

▲ **Ill., DeKalb**—DORMITORIES, etc.—Northern Illinois State Teachers College, plans by Schaeffer, Wilson & Evans, 710 Peoples Bank Bldg., Bloomington, two 4 story mens' and womens' dormitories and 2 story dining hall, **$3,840,000**. CD 2/11.

▲ **Md., Rockville**—COURT HOUSE—Comrs. Montgomery County, Court House, plans by Delos H. Smith, 808 17th St. N.W., Wash., D. C., and Ted Englehardt, 922 Pershing Dr., Rockville, Md. and J. B. Murphy, county archt., Rockville, stone, masonry, concrete steel court house addns., alterations. **$1,500,000.**

▲ **Mass., Revere**—SCHOOL—City, School Dpt., 153 Beacon St., plans by Kelly & Gruzen, 80 5th Ave., New York, N. Y., and Bourne, Connor, Nichols & Whiting, assoc. archts., 177 State St., Boston, Senior High School, Clay Pit area. **$3,540,000.** R. G. Vanderweil, 9 Newbury St., Boston, mechanical engr. Whitman & Howard, Inc., 89 Broad St., Boston, site engr. CD 8/20.

▲ **Mich., Flint**—MUNICIPAL—City, Harold C. Chirgwin, mgr., bond election Apr. 8, five municipal bldgs. **$1,245,000.**

▲ **Mich., Marquette**—SCIENCE—State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, plans by Warren S. Holmes Co., 2200 Michigan National Tower, Lansing, Natural Science Bldg., Biology, Geography, Geology, Physics and Mathematics Dpt., Northern Michigan College. **$1,980,000.**

▲ **Mich., Okemos** — SCHOOLS — Bd. Educ., Okemos Schools, $2,100,000 bond election Mar. 11, Junior High School, **$850,000;** Cornell School addn., **$200,-000**, high school, **$1,000,000.**

▲ **Mich., Southfield**—SCHOOLS—Owner, c/o Holy Name R.C. Parish, John P. O'Hara, Jr. chn. Fund Campaign, Birmingham, two high schools, Lahser Rd. north of 14-mile Rd. on 35 acre site, 11 acres for girls high school and 18 acres for boys high school, near Westchester Village. **$2,000,000.** Fund drive to start March 14.

▲ **Mich., Sturgis**—SCHOOL—Bd. Educ., Sturgis Schools, $2,980,000 bond election March 24, Senior High School. **$1,885,000.** CD 12/13.

▲ **Mich., Walled Lake**—SCHOOL—Bd. Educ., Walled Lake Consolidated School Dist., Walled Lake, voted bonds Feb. 18, Junior High School and elementary school. **$2,000,000.** Walter T. Anicka & Assocs., 2300 Washtenaw, Ann Arbor, archts. CD 2/25.

▲ **Minn., Columbia Heights**—SCHOOL—Bd. Educ., O. Christopherson, clk., defeated, **$2,670,000**, bonds Feb. 18, Senior High School. CD 1/31.

▲ **Minn., Red Wing**—HOSPITAL—City, H. E. Nordholm, clk., plans by Ellerbe & Co., E 505 First Natl. Bank Bldg., St. Paul, 100-bed city hospital. **$2,000,000.**

▲ **Neb., Lincoln**—YOUTH, etc.—University of Nebraska, (C.N. Harrdin), Lincoln, youth bldg. and adult conference bldg. **$2,640,000.** CD 9/18.

▲ **Neb., Omaha**—HIGH SCHOOL—Bd. Educ., 3902 Davenport St., (E. H. Parrish asst. supt.), plans by Wallace & Burrill, Inc., 1401 First Natl. Bank, addn., alterations North High School, incl. music room. cafe., gym, 10 classrooms, **$1,250,000.** CD 12/19.

▲ **N. J., Jersey City**—COURT HOUSE—Bd. Freeholders Hudson Co., Court House, plans by Joseph A. Comparetto, 305 Academy St., altering court house, **$2,-125,000.**

▲ **N. J., Morristown**—SCHOOL—Bd. Educ., Twp. of Morris, high school, Morris Twp. **$1,250,000** Epple & Seaman, 901 Broad St., Newark, archts. CD 3/12.

▲ **N. J., Paterson**—COLLEGE—Bd. Trustees Paterson Teachers College, Pompton Rd., classroom, food service bldg., gymnasium, heating sys. and utility room, New Jersey State Teachers College, **$3,625,000.**

▲ **N. M., Grants**—SCHOOL—Grant School Dist. voted **$1,000,000** bonds, schools. CD 6/17.

▲ **N. Y., Neponsit**—HOME FOR AGED—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, plans by Joseph R. Loring & Assocs., 101 W. 47 St., New York, Zone 19, Proj. No. WL-31, conversion of former Neponsit Beach Hospital to Home for Aged. **$1,000,000.** CD 7/14/54.

▲† **N. Y., New York**—FEDERAL OFFICE—General Services Admin., 18 and F Sts. N.W., Wash. 25, D. C., federal office bldg., seeking offers of site in downtown Manhattan, West Broadway, Fulton, Nassau Sts., Park Row, Walker and Baxter Sts. **$65,100,000.** CD 2/10/50.

▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 299 Broadway, Zone 7, plans by Joseph & Vladeck, 1841 Broadway, Zone 23, Proj. NYS-84-Borgia Butler Houses for 1,500 families on site bounded by E. 169 St., Webster Ave., E. 171 St. and Park Ave. **$25,000,000.** CD 3/4.

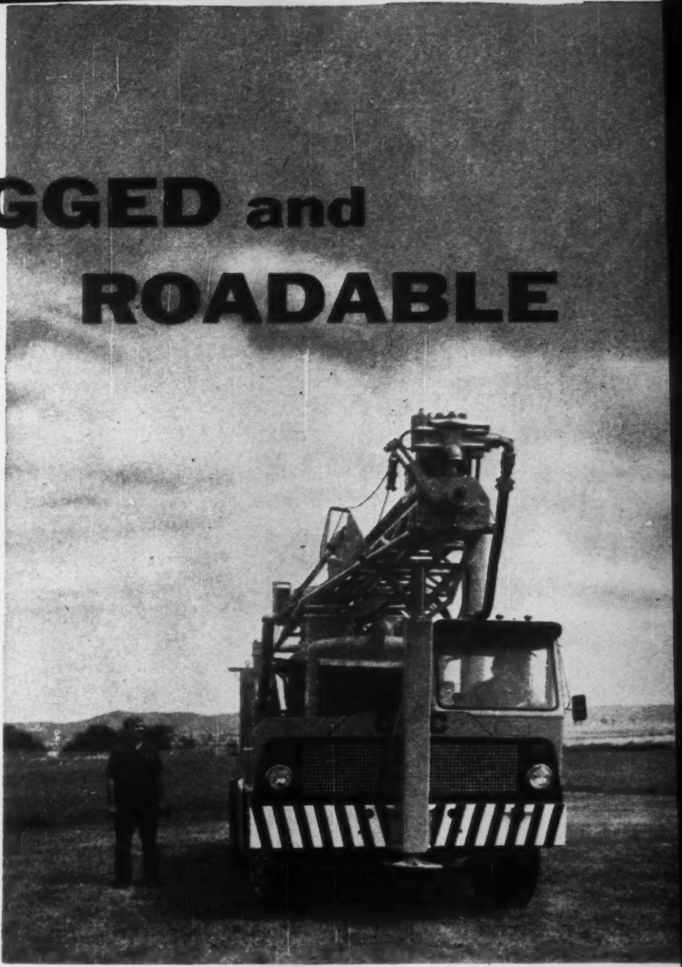
▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 299 Broadway, Zone 7, plans by York & Sawyer, 101 Park Ave., Zone 17, Proj. NY-5-33-James Madison Houses on site bounded by Madison Ave., E. 110 St., Park Ave. and E. 106 St. **$8,000,000.** CD 6/22/55.

▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 299 Broadway, Zone 7, plans by Chapman, Evans & Delehanty, 50 Broadway, Zone 4, Proj. NY-5-37-Gouverneur Morris Houses for 1,622 families on site bounded by Park Ave., E. 171 St., E. Ave., E. 169 St. **$24,000,000.** CD 6/22/55.

▲ **N. Y., Brooklyn**—APARTMENT—New York City Housing Auth., 299 Broadway, New York, Zone 7, Div. Ave.-Roebling St. area, 500-apartment, state-subsidized

(Continued on page 104)

MORE RUGGED and ROADABLE



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The new truck-mounted Drillmaster gives you the proved *performance* and *versatility* that have made contract drillers acclaim it as the most productive blast-hole unit ever developed.

You can set up and be ready to drill in a matter of minutes. Tower is raised and leveled effortlessly by hydraulic power. With the I-R revolutionary *down-the-hole* drill you can drill from 70′ up to 350′ or more of 4¾″ to 6½″ blast holes per shift. And for soft non-abrasive over-burden and bed rock, use it as a heavy-duty *rotary drill.*

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This improved "TRUCM" mounting features a completely new mobile unit especially designed to I-R heavy-duty specifications by Crane Carrier Corp. — leading maker of specialized carriers. It can go anywhere at sustained highway speeds — meets legal requirements in all 48 States.

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Length	34′ 11″	Weight	34,000 lb.
Height	12′ 6″	Wheel Base	175″
Width	8′	Compressor Fuel Capacity	200 gal.

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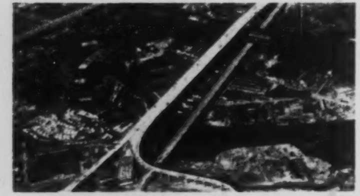


GRANVILLE ST. BRIDGE, VANCOUVER, BRITISH COLUMBIA—One of the largest 8 lane bridges in North America. Here Weld-Crete was applied to bridge surface to bond cement dividing strips. Now, over 4 years later, bonds are as good as new. *General Contractor: Dominion Bridge Company.*

SEVEN CORNERS SHOPPING CENTER, FALLS CHURCH, VIRGINIA—During construction of this 600,000 sq. ft. structure, initially only part of floor was poured and floated to a smooth finish. Areas in which show windows would be added were poured as base slab only. Slab was coated with Weld-Crete. After store fronts were custom-built, delayed toppings of 1" to 1½" thick were poured with assurance of permanent bond to base slab. These toppings were then finished with asphalt tile, wood, or finish flooring of lessee's choice. Designed and constructed by The Kass Realty Co. of the Kass-Berger Organization under direction of J. Franklin Groff. *Concrete Contractor: Moses-Ekco.*

(Continued from page 102)

project bounded by South 9 St. and Division Ave. and by Marcy Ave. and Roebling St. **$8,500,000.**

▲ **N. Y., Brooklyn**—APARTMENT—New York City Housing Auth., 299 Broadway, New York, Zone 7, Wilson St.-Bedford Ave. area, 750-apartment, state-subsidized project bounded by Clymer and Wilson Sts. and by Bedford and Wythe Aves. **$12,750,000.**

▲ **N. Y., Brooklyn**—APARTMENT—New York City Housing Auth., 299 Broadway, New York, Zone 7, Park Ave.-Tompkins area, 1,180-apartment, federally-subsidized project bounded by Park and Myrtle Aves. and by Throop and Tompkins Aves. **$20,000,000.**

▲ **N. Y., Brooklyn**—APARTMENT—New York City Housing Auth., 299 Broadway, New York, Zone 7, S. 8 St.-Driggs Ave. area, 530-apartment, federally-subsidized project bounded by South 8 St. and South 9 St. and by Driggs Ave. and Berry St. **$9,010,000.**

▲ **N. Y., New York**—APARTMENT—New York City Housing Auth., 299 Broadway, Zone 7, Edenwold Exten., 500-apartment, state-subsidized project located within an area adjoining Schieffelin Ave. and between East 229 and East 225 Sts. **$8,000,000.**

▲ **N. Y., New York**—APARTMENT—New York City Housing Auth., 299 Broadway, Zone 7, St. Mary's Park East, 470-apartment, federally-subsidized project within an area bounded by East 149 St. and by Jackson Ave. and St. Mary's Park. **$7,990,000.**

▲ **N. Y., New York**—APARTMENT—New York City Housing Auth., 299 Broadway, Zone 7, Amsterdam Houses Exten., 200-apartment, federally-subsidized project located approx. within eastern third of block bounded by West 60 and West 59 Sts. and by Amsterdam and West End Aves. **$3,400,000.**

▲ **N. Y., New York**—APARTMENT—New York City Housing Auth., 299 Broadway, Zone 7, Morris Houses South, 200-apartment, federally-subsidized project located in area fronting on 169 St. and extending south for approx. 1/3 of block bounded by Washington and Park Aves. **$3,400,000.**

▲ **N. Y., New York**—APARTMENT—New York City Housing Auth., 299 Broadway, Zone 7, East 188 St., Area, 390-apartment, federally subsidized project occupying block bounded by East 188 and East 187 Sts. and by Bathgate and Washington Aves. **$6,630,000.**

▲ **N. Y., New York**—APARTMENT—New York City Housing Auth., 299 Broadway, Zone 7, Chelsea Area, 450-apartment, state-subsidized project, located approx. within western half of block bounded by West 25 and West 24 Sts. and by Ninth and Tenth Aves. **$7,650,000.**

▲ **N. C., Wilson**—SCHOOLS—Bd. Comrs. Wilson Co. and City of Wilson, Courthouse, voted bonds Feb. 15, schools. **$1,000,000.** CD 10/28/55.

▲ **O., Dayton**—LIBRARY—City of Dayton & Montgomery Co. Library Bd., City Hall, library. **$2,400,000.**

▲ **Tex., Amarillo**—HOSPITAL—Potter Co., Court House, plans by William C. Townes & Assocs., 1208 W. 10 St., remodel and expand Northwest Texas Hospital, **$1,237,000.** CD 5/31/56.

▲ **Tex., Arlington**—SCHOOLS—Arlington Ind. School Dist., c/o J. C. Ferguson, pres. Bd. voted $5,000,000 bonds Feb. 15, Elementary School No. 1 **$600,000;** Elementary School No. 2 **$550,000;** Elementary School No. 3 **$650,000;** Elementary School No. 4 **$700,000;** new Junior High School **$1,750,000;** high school addn. **$750,000.** CD 1/15.

▲ **Wash., Seattle**—ENGINEERING—University of Washington, 15 Ave. N.E. and E. 40 St., Zone 5, plans by Harmon, Pray & Detrich, 2000 5 Ave., Zone 1, general engineering bldg. **$1,000,000.** CD 12/24.

▲ **Wash., Seattle**—MECHANICAL ENGINEERING—University of Washington, E. 45 St. and 17 Ave., Zone 5, plans by Carlson-Eley-Grevstad, 432 Eastlake Ave., rein.-con. mechanical engineering bldg. **$1,800,000.** Bids to be called next month. CD 2/14/49.

▲† **Wash., Spokane**—POSTAL TERMINAL—General Services Admin., P. Bldgs. Service, 909 1 Ave., Seattle, Zone 4, plans by Whitehouse, Price, DeNeff & Deeble, Hutton Bldg., 160,000 sq. ft. postal terminal annex and garage. **$2,000,000.** Bid call expected in May, CD 11/14/56.

▲ **Wis., Hartford**—SCHOOL—Union High School Dist., plans by R. N. Le Vee & Assocs., 1000 W. College Ave., Appleton, high school, **$1,500,000.**

▲† **Alaska**—HOUSING—U. S. Eng., Anchorage, family quarters at tactical sites, **$5,000,000;** NCO family quarters at unspecified sites, **$750,000.** Bids in May.

▲† **Alaska, Fort Richardson**—QUARTERS, etc.—U. S. Eng., Anchorage, officers family quarters **$2,500,000;** hangar with shop, **$750,000.** Bids in May.

COMMERCIAL BUILDINGS

▲ **Calif., Sacramento**—FEDERAL OFFICE—The General Services Admin., Regional Office, 49-4th St., San Francisco, plans by Harry J. Devine, Herbert E. Godpastor, R. Franceschi, Dreyfus Rickey and Brooks, 1012 J St., federal office bldg. and courthouse (lease-purchasing proj.) **$10,000,000.** CD 11/29/56.

▲ **Calif., San Pedro**—HOSPITAL—Bd. Directors, San Pedro Comm. Hospital, 1305 W. 6th St., plans by Project Architects, 3460 Wilshire Blvd., Los Angeles, 4-5 story, concrete, masonry addns. to San Pedro Comm. Hospital. **$1,900,000.**

▲ **Conn., Trumbull**—HOME FOR AGED—Diocese of Bridgeport, Chancery Office, 359 Washington Ave., Bridgeport, plans by J. Gerald Phelan, 211 State St., Bridgeport, Catholic Home for Aged, Hubbel Property. **$1,000,000.** Fletcher-Thompson, Inc., 211 State St., Bridgeport, consult. engr. CD 2/18.

▲ **Del., Wilmington**—OFFICE—Shapdale, Inc., Delaware Trust Bldg., plans by W. Ellis Preston, 903 Jefferson St., 22 story office addn., at Delaware Trust Bldg., between Market and King Sts. **$10,000,000.**

▲ **Ill., Markham**—SHOPPING CENTER—Canterbury Gardens, Inc., 176 W. Adams St., Chicago, plans by Sidney H. Morris & Assocs., 134 N. LaSalle St., Chicago, Canterbury Shopping Center, 159th and Kedzie Ave., **$4,000,000.**

▲ **N. J., Paterson**—YOUTH CENTER—Temple Beth-El, 387 12 Ave., Youth Center, 12th Ave. **$1,000,000.**

▲ **N. J., Princeton**—DORMITORY, etc.— Princeton University, dormitory and dining hall. **$6,000,000-$7,000,000.** CD 3/27.

▲ **O., Shaker Heights**—APARTMENT—Wm. Dolin Constr. Co., Hippodrome Bldg., Cleveland, Zone 14, 26-suite apartment, Van Aken Blvd. **$1,500,000.**

▲ **Ore., Portland**—NURSES HOME—Emanuel Hospital, 2801 N. Gantenbein Ave., plans by Church, Newberry, Hoehr & Schutte, Builders Exchange Bldg., 3 wing addn. to nurses home. **$1,400,000.**

▲ **Pa., Altoona**—NURSES HOME—Altoona Hospital, Altoona nurses home bldg. **$1,125,000.**

▲ **Pa., Phila.**—APARTMENT—Bryn Mawr Ave. Apartments, Inc., c/o John Hans Graham & Assoc., archts., 2000 "K" St. N.W., Wash., D. C., apartment, Bryn Mawr Ave. **$1,500,000.** (**Correction**—architects name and address). CD 1/21, and 2/19.

▲ **Tex., Edinburg**—SCIENCE, etc.—Pan American College, c/o College Bd. Regents, 211 N. 8th St. classroom bldg. **$1,000,000;** dormitory **$750,000;** classrooms bldg. **$1,000,000;** dormitory **$750,000;** library **$350,000;** playgrounds, athletic fields **$100,000,** on 100-acre tract adjacent to existing college bldgs.

▲ **Tex., Fort Worth**—RESIDENCES—Frank C. Bliss & Co., 425 W. 7th St., 100 brick residences, Ridgecrest Addn. **$2,000,000.**

▲ **Tex., Grand Prairie**—HOSPITAL—Greater Grand Prarie Hospital Com., c/o Ed Fry, Grand Prairie, Tex. Sponsors, hospital. **$1,000,000.** CD 4/25/56.

▲ **Tex., Houston**—APARTMENT—Louis & David Cowan, 110 E. 42 St., H. T. Ford & Charles F. Noyes Co., Inc., 42 Broadway, New York, N. Y., and c/o Albert N. Cecil, Jr., 4650 Merwin St., 16 story apartment, bounded by Ewing Ave., Hermann Dr. and Austin and LaBranch Sts. **$3,250,000.**

▲ **Wash., Kent**—HOUSES—Duke & Duchess Corp., Kent, 400 houses in area west of Kent from Kent-Des Moines Rd., north to S. 216 St. **$12,000,000.** Planned for constr. during next five years.

▲ **N. S., Yarmouth**—HOSPITAL—Hospitallers of St. Joseph, Yarmouth, plans by Belanger & Roy, Edifice l'Assomption, Moncton, N. B., 5 story, fireproof hospital. **$1,825,000.** CD 2/19.

▲ **Ont., Peterborough**—HOME FOR AGED—St. Joseph's Order, Diocese of Peterborough, Peterborough, Ont., plans by Chester C. Woods, 2842 Bloor St. W., Toronto, 3 story, bsmnt., L-shaped, 68 x 190 ft., rein.-con. brick Home for the Aged. **$1,000,000.** Ralph C. Manning, 745 Mt. Pleasant Rd., Toronto, consult. engr.

▲ **Que., Montreal**—HOUSING—Highland Development Ltd., 262 Grande Cote Rd., housing program in Parish of Ste. Therese. **$6,000,000.**

INDUSTRIAL BUILDINGS

▲ **California**—PLANT—Pacific Gas & Electric Co., 245 Market St., San Francisco, 60,000 kw atomic power plant at Humboldt Bay Plant, Eureka. If AEC grants permission to construct Bechtel Corp., 225 Bush St., San Francisco, will design and construct and General Electric Co., River Rd., Schenectady, N. Y. will supply electrical and nuclear equipment.

▲ **Calif., San Francisco**—GARAGE, etc.—J. E. Moser Co., 68 Post St., 7 story, 1st four floors for garage and 3 upper stories for restaurant, garage and restaurant, in 800 block California St. **$1,000,000.**

▲ **Pa., Bradford**—PLANT—Corning Glass Wks., 1946 Crystal St., Corning, N. Y., plant addn. **$1,000,000.**

▲ **Pa., Phila.**—PRODUCE—Food Distribution Center, 12 S. 12th St., plans by the Ballinger Co., archt.-consult. engr. 1625 Race St., 2 produce bldgs. **$2,000,000.**

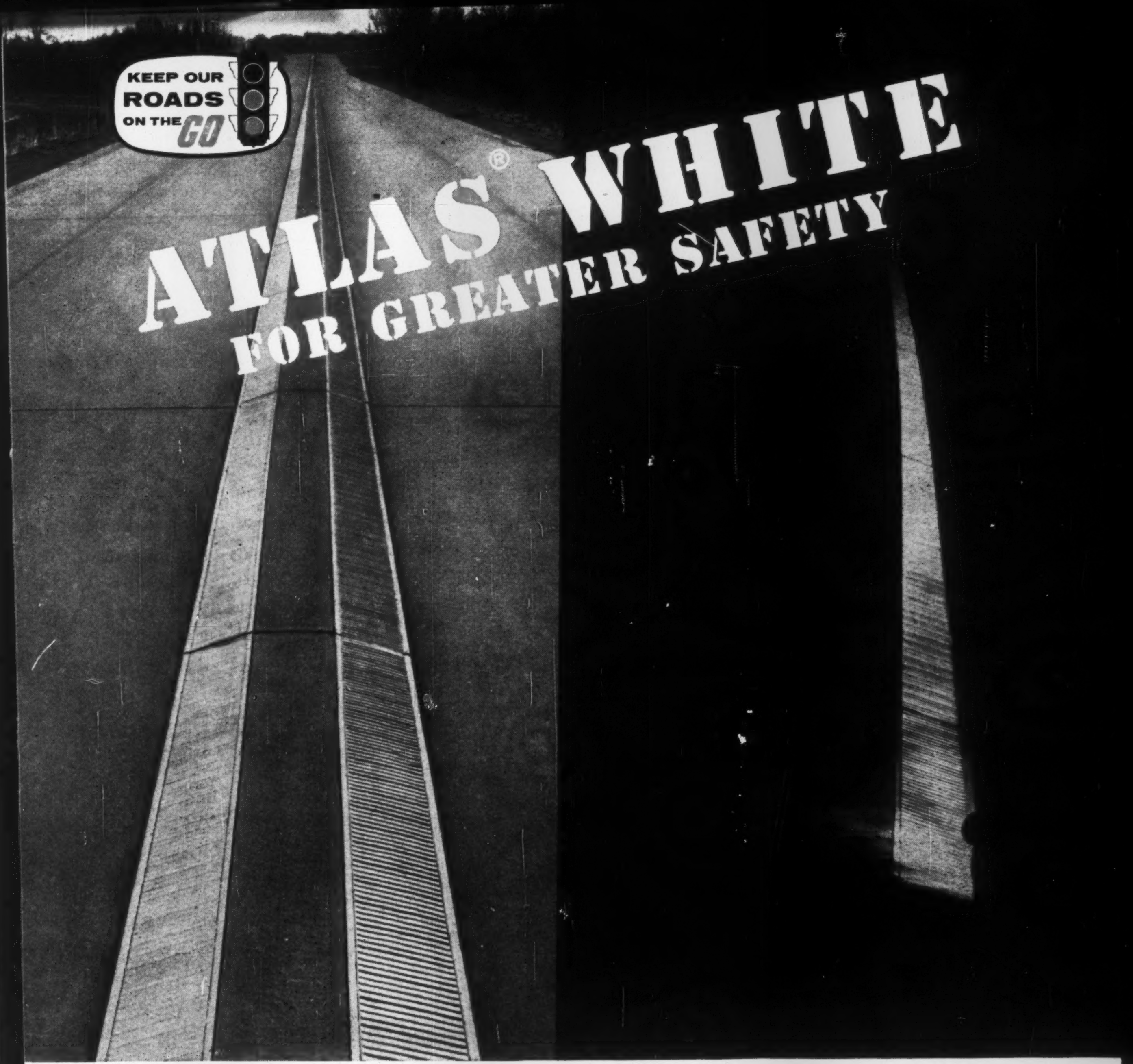
UNCLASSIFIED

▲ **Fla., Miami Beach**—PARKING AREA—City, City Hall, 1130 Washington Ave., rein.-con., prestressed concrete Second Level Parking area, 7,000 cu. yd. concrete 44,800 lin. ft. prestressed concrete joists, 6,000 sq. yd. concrete surf. to be painted, lighting plumbing, Lincoln Lane in vicinity of 17 St. between Pennsylvania and Washington Aves., **$1,000,000.** City Eng. Dpt., 1130 Washington Ave., consult. engr.

▲ **Massachusetts**—NIKE FACILITIES—U. S. Eng., 150 Causeway St., Boston, sewage disposal sys. **$100,000-$200,000;** paving, drainage at 12 Launcher sites; **$750,000-$1,000,000;** athletic courts, **$100,000;** elevator imprvs. 10 defense sites. **$100,000-$200,000;** 2 field maintenance shops, $100,000, all in defense area, Boston.

▲ **N. J., Woodbridge**—GAS DISTRIBUTION CENTER—Elizabeth Consolidated Gas Co., 16 W. Jersey St., Elizabeth, gas distribution center, on 42.3 acre tract, Iselin section, Woodbridge Twp. **$1,000,000.**

▲ **Oklahoma**—PIPE LINES—Cherokee Pipe Line Co., (subsidiary of Cities Services Co. & Continental Oil Co.,) Ponca City, Okla., 87 mi. 12 in. pipe line from Afton to Ponca City to Glenpool near Bixby, Ottawa-Tulsa Counties. **$5,500,000.** CD 1/16.



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CAT Engines are economical to operate. They start easily and stand up under the roughest going. The special metals and superior workmanship which go into their manufacture mean negligible down time, and this in turn means that your other equipment on the job won't be idled because a key machine has to be repaired. That's why you often see reliably rated Cat power units widely used on a single job—powering a combination of cranes, ditchers, cement batchers, auxiliary lighting—the works. And for the same profit-making reasons, you find a growing preference on the part of the job-wise contractor for Cat Engines to *repower* equipment that's short on day-in day-out guts.

Developed as the first tractor-diesel engine, these same basic characteristics—from smooth lugging without fouling to the ability to idle for long periods—make Cat Engines of today first choice to power and repower the contractor's valuable equipment. Particular attention is always paid to durability, a trouble-free fuel injection system able to handle a wide range of fuel, and to maximum protection for its fuel, air, oil and water.

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A dependable Cat D318 Engine furnishes power for the operation of this Parsons trencher, and a pair of D311s work the Insley cranes in the background. The Mainland Construction Co. of Texas City, Texas, is handling this new housing project, and Clyde E. Smith, partner, says, "We can bid the jobs cheaper when we have good equipment that gets the job done. During the five years we have been in business we have never lost an hour's time due to failure of Cat-built equipment!"

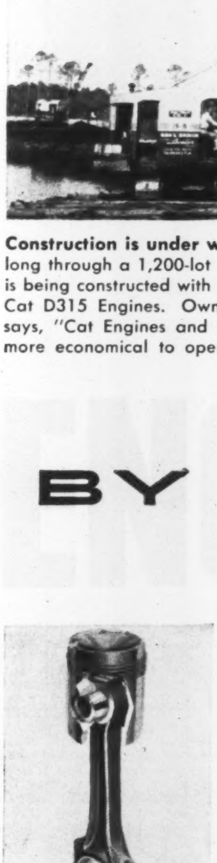
for original power and repowering

C. J. Langenfelder & Son, Inc., relies on a heavy-duty Cat D397 Engine to power this Lima shovel, loading out slag material for use on runway extension and widening job at Middletown Air Depot, Middletown, Pa. Cat DW20s and a Cat D8 Tractor are also on the job. This spread's Equipment Superintendent, LeRoy A. Marquis, says, "You can't beat Caterpillar power — economical to operate, low in down time, dependable to the nth degree!"

Construction is under way on a canal 85 feet wide and 9 miles long through a 1,200-lot subdivision. This pleasure boat waterway is being constructed with 2 Bucyrus-Erie 15-B draglines powered by Cat D315 Engines. Owner Cuyler L. Lanier of Tavares, Florida, says, "Cat Engines and equipment turn out more work and are more economical to operate than similar machines."

Russ Mitchell, Inc., of Houston, Texas, repowered this Austin ditcher with a Cat D13000; and a Koehring clamshell on the job is powered by a D318. Job is trench work for a storm sewer. Said E. C. Cowart, Job Superintendent, "For my money Cat makes the best equipment in the dirt-moving business. I like the dependability of their engines when the going is tough!"

ENGINE POWER
BY CATERPILLAR



Piston assembly built of separate metals for longer life. Lightweight aluminum alloy pistons keep bearing loads at a minimum. Cast-in iron top ring band prevents undue side wear of ring groove. Wear-resistant chrome-faced top ring maintains good oil control. A stainless-steel heat plug prevents excessive erosion on piston top in all high-output engines.

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
March 17 Connecticut March 18 Massachusetts
March 21 Vermont

BUILDINGS—BA

▲ **Mass., Peabody**—SCHOOL—BA 3/18—R. C. Diocese Boston, Chancery Office, 1 Lake St., Brighton, Central Catholic High School and convent, North Peabody. $3,000,000. Maginnis, Walsh & Kennedy, 126 Newbury St., Boston, archts. CD 12/28/56.

▲ **Mass., Watertown**—NUCLEAR REACTOR FACILITIES—BA On Or About 4/2—U. S. Eng., 150 Causeway St., Boston, nuclear reactor facilities, Watertown Arsenal. $1,250,000. Giffels & Vallet, Inc., 1000 Marquette Bldg., Detroit, Mich., archt.

HEAVY CONSTRUCTION—LB & CA

▲ **Berke Moore Co., Inc.**, 8 Newbury St., Boston, Mass. CA **$2,696,900**, est. $2,700,000, Contr. No. 216, Chelsea Creek Headwork, Marginal and Maverick Sts. and Eastern Ave., CHELSEA, MASS. Commonwealth of Mass., MDC-Constr. Div., 20 Somerset St., Boston, Mass. Charles A. Maguire & Assoc., 14 Court St., Boston, Mass., engrs. Bids Feb. 13. CD 2/18, under LB.

BUILDINGS—LB & CA

▲ **James S. Kelliher Co.**, 1245 Hancock St., Quincy, Mass. CA **$1,174,657**. ELEMENTARY SCHOOL, Martin District, Roxbury, BOSTON, MASS. City, Dpt. School Bldgs., 26 Norman St., Boston, Mass. Bids Feb. 19. CD 2/25, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
March 27, 28 Pennsylvania
STREETS AND ROADS
March 19 Delaware March 25 New Jersey
March 27, 28 Pennsylvania March 28 Maryland
April 3 New York

▲† **Pennsylvania**—BA 4/16—U. S. Eng., 24th and Maryland Ave., Baltimore 18, Md., Stillwater Dam and appurtenant work consisting of cofferdam and river diversion, excavation and embankment for rolled fill earth dam, 77 ft. high, 1,700 ft. long, slope protection and drainage, concrete spillway near Forest City, ENG-18-020-58-9. $3,000,000-$5,000,000. Gannett, Fleming, Corddry & Carpenter, Inc., 600 N. 2nd St., Harrisburg, engr. CD 1/30.

BUILDINGS—BA

▲† **Md., Bethesda**—LABORATORY—BA 4/2—General Services Admin., P. Bldgs. Service, Wash., 25, D. C., general constr. 5 story, penthouse, bsmnt. bldg., biologic standards laboratory, (except elevators) National Institutes of Health, Proj. No. 18081, Contr. No. GS3-B 4900, Appr. No. 47-75 x 0394. Plans deposit $35. (**Correction**—bid date). CD 3/5.

▲ **Pa., University Park**—HOME ECONOMICS—BA 4/9—completion home economics bldg. for Pa. State University $1,320,000. Plans deposit $15. Buchart Eng. Corp., 611 and W. Market St., York, engrs.-archts. CD 9/28/56.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW JERSEY**—Comr. State Hy. Dpt., 1035 Parkway Ave., Trenton, Bids opened 3/4,

Charles F. Vachris, 9024 Ditmas Ave., Brooklyn 36, N. Y., LB **$1,501,358**, constr. bridges on 0.141 mi. Rte. 102, Section 2D, Rte. 28 (1927), Greenwich Church Rd. to relocated Rte. U. S. 22, Greenwich and Franklin Twps., Bloomsbury Borough, Fed. Proj. No. I-102-2(11), Warren and Hunterdon Counties. CD 2/14.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2, Bids opened 3/4,

Taylor & Keebler, Clinton, Md., LB **$1,187,207** (5 bidders) 30x147 ft. steel beam bridge over W. M. R.R. on relocated State Rte. 63 near Kemns Mill, W-454-2-620, Washington Co. CD 2/7.

▲ **MARYLAND**—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2, Bids opened 3/4,

Charles W. Williams & Assocs. and **41 Street Corp.**, 4811 Benson Ave., Baltimore, Md., LB **$2,390,343** (12 bidders) grading, drainage and surf. 3.655 mi. new Southbound Lane US 301, near Millersville, Contr. AA-485-4-520, Anne Arundel Co. CD 1/29.

▲ **Square Constr. Co.**, 115 S. Haven St., Baltimore, Md., LB **$1,486,172** (8 bidders) constr. 12 ft. diam. storm water sewer, East Capital St. between Burns St. and Texas Ave., WASH., D. C. D. C. Govt. Sanitation Dpt., 499 Pennsylvania Ave., Wash., D. C. Bids Feb. 28. CD 1/21.

BUILDINGS—LB & CA

▲ **John Oechslin, Inc.**, Commack Rd., Commack, N. Y., LB **$1,197,200** (14 bidders) Central HIGH SCHOOL, GREENLAWN, N. Y. Bd. Educ., Greenlawn, N. Y. Bids Mar. 3. CD 1/15.

▲† **B. J. Lucarelli & Co., Inc.**, 22 Orchard St., Jersey City, N. J. CA **$4,848,000**, 300 unit Capehart HOUSING, McGuire Air Force Base, WRIGHTSTOWN, N. J. Procurement Officer, McGuire Air Force Base, Wrightstown, N. J. Bids Jan. 16. CD 1/31, under LB.

▲ **N. P. Ninneman, co-ordinator**, Commercial Dr., Camp Hill Pa. Owner Builds. **$6,000,000**, 174 HOUSES swimming pool, CLUB HOUSE, NEW CUMBERLAND, PA.

▲ **Prince George's Co. Bd. Educ.**, Marlboro, Md., rejected bids Jan. 14, HIGH SCHOOL, MARLBORO, MD., LB **$2,064,000**. Will re-advertise. CD 1/17, under LB.

▲† **Five Boro Constr. Co.**, 2 Lafayette St., New York 7, N. Y., CA **$3,077,000**, BUILDINGS and utilities, addns., alterations at Veterans Hospital, PERRY POINT, MD. Veterans Admin., Munitions Bldg., Wash., D. C. Bids Jan. 21. CD 1/23, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
March 19 Virginia March 20 Kentucky
STREETS AND ROADS
March 19 Virginia March 20 Kentucky

BUILDINGS—BA

▲† **Tenn., Oak Ridge**—HOSPITAL—BA About 4/15—U. S. Atomic Energy Comn., P.O. Box E, ATT.: R. J. Dunbar, Area Constr. Div., Oak Ridge, 4 story, 109,000 sq. ft. hospital, Inv. No. 401-58-6A. Plans deposit $60. CD 8/21.

BUILDINGS—LB & CA

▲ **English Constr. Co.**, Alta Vista, Va. CA **$1,434,700** (8 bidders) HIGH SCHOOL, Vienna, FAIRFAX, VA. Fairfax Bd. Educ., Fairfax, Va. Bids Mar. 4. CD 2/12.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
March 19 Michigan March 25 Illinois
STREETS AND ROADS
March 19 Michigan March 25 Illinois

BUILDINGS—BA

▲ **O., Van Wert**—HOSPITAL—BA 3/20—Comrs. Van Wert Co., Court House, county hospital. $1,750,000. Plans deposit $50. Dan Carmichael, 5 E. Long St., Columbus, archt. Former contractor made error in bid. CD 2/26.

▲ **Mich., Redford**—SCHOOL—BA 3/31—Bd. Educ., South Redford School Dist., 26255 Schoolcraft Rd., Detroit, Junior High School, Orangelawn and Royal Grand Aves. $1,800,000. Plans deposit $25. Giffels & Rossetti, 1000 Marquette Bldg., Detroit, Zone 26, archts. CD 10/29.

BUILDINGS—SLC

▲ **Mich., Port Huron** — CIVIC AUDITORIUM — Henry McMorran Foundation, Wm. O. Covington, soon lets contract civic auditorium. $1,200,000. Alden B. Dow, Inc., 315 Post, Midland, archt. CD 12/12/55.

BUILDINGS—LB & CA

▲ **B. G. Danis Co.**, 1518 East 1st St., Dayton, O. LB **$1,582,832**. general contract Nettie Lee Roth HIGH SCHOOL, DAYTON, O. Bd. Educ., 348 W 1st St., Dayton, O. Bids Feb. 24. CD 1/29.

▲ **Molnar-Riley Constr. Co.**, 761 Warwick Dr., Lorain, O. CA **$8,400,000**. constr. 605 HOMES in Oakwood Acres, LORAIN, O. Ranier Corp., 1633 Broadway, Lorain, O.

▲ **Precour Constr. Co.**, 1117 Bowen St., Oshkosh, Wis. LB **$1,339,800**. (4 bidders), POST OFFICE (lease purchase proj.) GREEN BAY, WIS., General Services Admin., 19th and F Sts., N.W., Wash., D. C. Bids Mar. 4. CD 2/5.

▲ **R. E. Dailey**, 21675 Telegraph Rd., Detroit, Mich. LB **$1,340,000**. general contract HOSPITAL ADMINISTRATION BLDG., Plymouth State Home & Training School, PLYMOUTH, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lewis Cass Bldg., Lansing, Mich. Bids Feb. 20. CD 1/22;
Goss Mechanical Contractors, 3409 Linden, Detroit, Mich. LB **$614,900**. mechanical work (Plymouth, Mich.)

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
March 20 Kansas March 21 North Dakota
STREETS AND ROADS
March 20 Kansas March 21 North Dakota

BUILDINGS—BA

▲ **Neb., Nebraska City**—HOSPITAL—BA 3/28—St. Marys Hospital (Dr. G. Zimmerman) Nebraska City, St. Marys Hospital addns., alterations $1,400,000. John Latsner & Sons, 1304 Farnam St., Omaha, archts. CD 2/26.

▲ **Minn., Minneapolis**—HOMES—BA 4/2—Minneapolis Housing & Redevelopment Authority, Metropolitan Bldg., R. T. Jorvig, exec. dir., constr. Glenwood Redevelopment Proj., Lyndale Homes (Site Q, south), consisting one 12 story bldg., 192 family units, row housing some 2-unit structures. $2,200,000. Thorshov & Cerny, 400 Metropolitan Bldg., archts. CD 12/22/55.

HEAVY CONSTRUCTION—LB & CA

▲ **MISSOURI**—State Hy. Dpt., Jefferson City, Bids opened 2/21,

Mo.—**Maxwell Bridge Co., Inc.**, Columbus, Kan., LB **$475,156** (4 bidders) graded earth 3.051 mi. Buchanan Co.; LB **$263,211** (8 bidders) graded earth 0.951 mi., Buchanan Co.;

Mo.—**Bridges Paving Co.**, 1337 S. Kingshighway Blvd., St. Louis, Mo., LB **$285,673** (6 bidders), wid'n., b. conc. 6.866 mi., St. Charles Co.

Mo.—**Samuel P. Hanens**, Paris, Mo., LB **$75,706** (4 bidders), grav. or crushed stone surf. 6.175 mi., Marion Co.;

Mo.—**Union Constr. Co.**, 1401 Fairfax Trafficway, Kansas City, Kan., LB **$784,538** (4 bidders), wid'n., b. conc. pavement and concrete parking lanes 2.032 mi., Pettis Co.;

Mo.—**W. J. Meenifee Constr. Co.**, 2500 W. 16 St., P.O. Box 30, Sedalia, Mo., LB **$939,053** (10 bidders), c. conc. 10.11 mi., Perry Co.;

Mo.—**Payne & Dolan, Inc.**, First Natl. Bank Bldg. 38 S. Dearborn, Chicago, Ill., LB **$291,996** (2 bidders), wid'n., b. conc. 6.919 mi., Franklin Co.;

Mo.—**Frank Tragee Contr. & Sons, Inc.**, 401 S. Washington, Chillicothe, Mo., LB **$382,138** (2 bidders), graded earth 5.322 mi., Livingston Co.;

Mo.—**Fruin Colnon Contg. Co.**, 706 Olive St., St. Louis, Mo., LB **$1,622,108** (7 bidders), 2-24 ft. c. conc. 2.27 mi., St. Louis Co.;

Mo.—**Electric Service Co.**, 2209 S. 12, St. Louis, Mo., LB **$99,058** (3 bidders), traffic signals and expressway lighting, St. Louis Co.;

Mo.—**McLean Constr. Co. & McLean Equip Co.**, 1846 E. Sunshine, Springfield, Mo., LB **$242,060** (6 bidders), 24 ft. b. conc. 2.66 mi., Newton Co.;

Mo.—**Freetoe Constr. Co.**, National Bank Bldg., Pittsburg, Kan., LB **$117,764** (6 bidders), 24 ft. b. conc interchange, Newton Co. CD 2/5.

▲ **ARKANSAS**—State Hy. Dpt., State Capitol, Little Rock, Bids opened 2/26,

Ark.—**Ben M. Hogan & Co.**, 1100 Fairview, Little Rock, Ark. LB **$1,476,982**, 2 addnl. lanes new Hy. 67-70 extend. 8.6 mi. from Benton to Pulaski Co. line near Benton Saline Co., LB **$745,652** interchange facility 1 mi. north of Turrell at Jct. of US Rte. 63 and new Int. Rd. old US 61 near Turrell Crittenden Co., LB **$142,515**, surf. 2.38 mi. Hy. 61 along a new location between Osceola and Luxora, Mississippi Co., LB **$152,380** reconstr. in 2 sections 3 mi. Hy. 67 NE. .6 mi. from Current River Bridge and Eastward 2.4 mi. from point near Datto, Randolph and Clay Counties;

Ark.—**Four Bros., Inc.**, Sweet Home, Ark. LB **$143,000** surf. 9.1 mi. Hy. 95 between Cleveland and Scotland, Conway and Van Buren Counties;

Ark.—**Mickeys, Inc.**, Warren, Ark. LB **$190,564** interchange facility at intersection 7th St. and new Interstate bypass road north of West Memphis Crittenden Co.;

Ark.—**Mississippi Valley Contg. Co.**, Paragould, Ark. LB **$105,888** surf. 8 mi. Hy. 34 between Delaplaine and Beech Grove, Deleplaine, Green Co.;

Ark.—**Arco, Inc.**, 101 Park Place, Pine Bluff, Ark. LB **$609,951** reconstr. 10.12 mi. Hy. 71 between Red River Bridge and Ashdwon, Little River Co. CD 2/18.

▲ **NORTH DAKOTA**—State Hy. Dpt., Bismarck,

N. D.—**Schultz & Lindsay Constr. Co.**, 320½ Broadway, Fargo, N. D., CA **$1,029,257**, Proj. 1-01-7 (11).
c. conc. 7.128 mi. on Interstate Rte. No. 1, W. of Valley City, Barnes Co.; CA **$911,344**, Proj. 1-01-8 (6), c. conc. 6.469 mi. Interstate Rt. 1 from Valley City E&W, Barnes Co.;

N. D.—**S. J. Groves & Sons Co.**, Wesley Temple Bldg., Minneapolis, Minn., CA **$948,661**, Proj. 1-02-4 (9), grading 18.93 mi. Interstate Rte. No. 2 from Drayton N.&S., Pembina and Walsh Counties. Grand total $2,889,263. Bids Jan. 24. CD 1/29, under LB.

▲ **NEBRASKA**—State Dpt. Rd. & Irrigation, Lincoln Bids opened 2/27,

Neb.—**Missouri Valley Constr. Co.**, Grand Island Neb. LB **$90,039** b. conc. surf. course 8.9 mi. US Hy. No. 30 between Busnell and Wyoming State Line Proj. SF-55306, Kimball Co.; LB **$74,174**, seal coat and mixed in place bit. surf. course 13.3 mi. secondary hy. west of NW of Arthur, Proj. S-777 (1) S-778 (1) Arthur Co.; LB **$490,747** c. conc. pavement guard rail, granular subbase course, soil-aggreg. base course b. conc. surf. course and gravel surf. for Detour 8.8 mi. US Hy. No. 34 between York and Seward on US Hy. No. 81 north of York on secondary Hy. between Waco and US Hy. No. 34 Proj. F-56 (15) F-143 (33) S-16 (4) York Co.; LB **$317,271** bit. sand surf. course and armor coat 10.3 mi. US Hy. No. 281 between O'Neil and Bartlett, Proj. F-313 (10) Holt and Wheeler Counties; LB **$254,406** armor coat, bit. sand surf. course and gravel surf. for Detour 9.3 mi. Nebraska Hy. No. 2 bet. Bingham and Ashby, Proj. F-277 (13); LB **$206,142** grading, crushed limerock base course bit. sand base course and b. conc. surf. course 6.3 mi. US Hy. No. 20 between Gordon-Merriman, Proj. F-202 (23) Proj.

(Continued on page 112)

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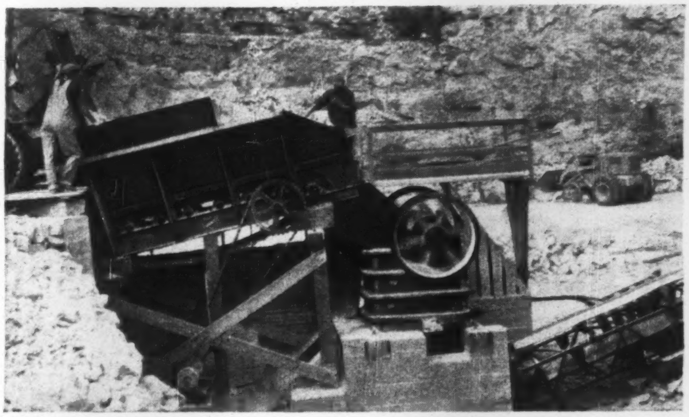
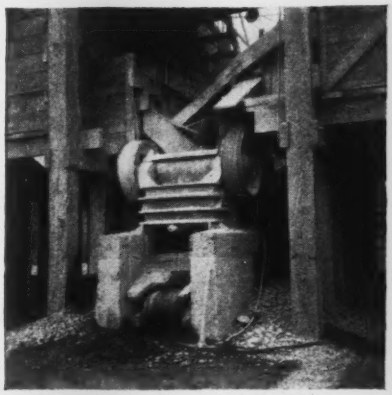
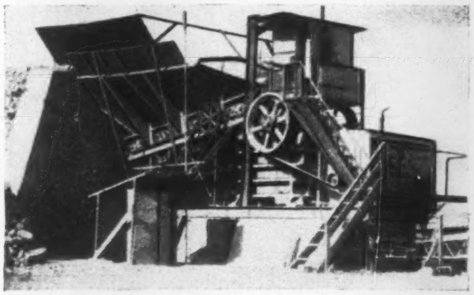


18″ x 32″ Telsmith Jaw Crusher and Heavy-Duty Apron Feeder in central Wisconsin quarry plant.

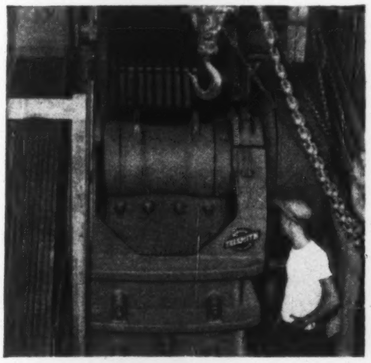


Telsmith 10″ x 36″ Jaw Crusher in an Oregon sand and gravel plant.



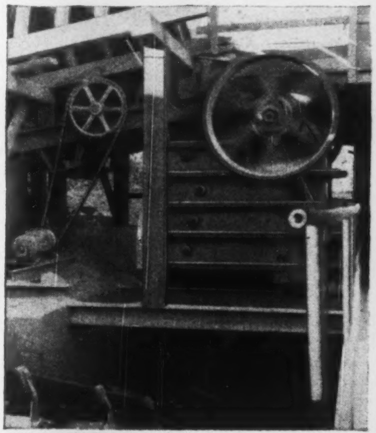
Telsmith 30″ x 42″ Jaw Crusher and Heavy-Duty Apron Feeder build airports in North Africa.

TELSMITH JAW CRUSHERS



25″ x 36″ Telsmith Jaw does the primary crushing of ore in British Columbia mine.

SEND FOR BULLETIN 280



30″ x 42″ Telsmith Jaw Crusher and Heavy-Duty Apron Feeder in Pennsylvania quarry.

18″ x 32″ Telsmith Jaw Crusher, Heavy-Duty Plate Feeder and Rotary Grizzly in New York gravel plant.

J-1

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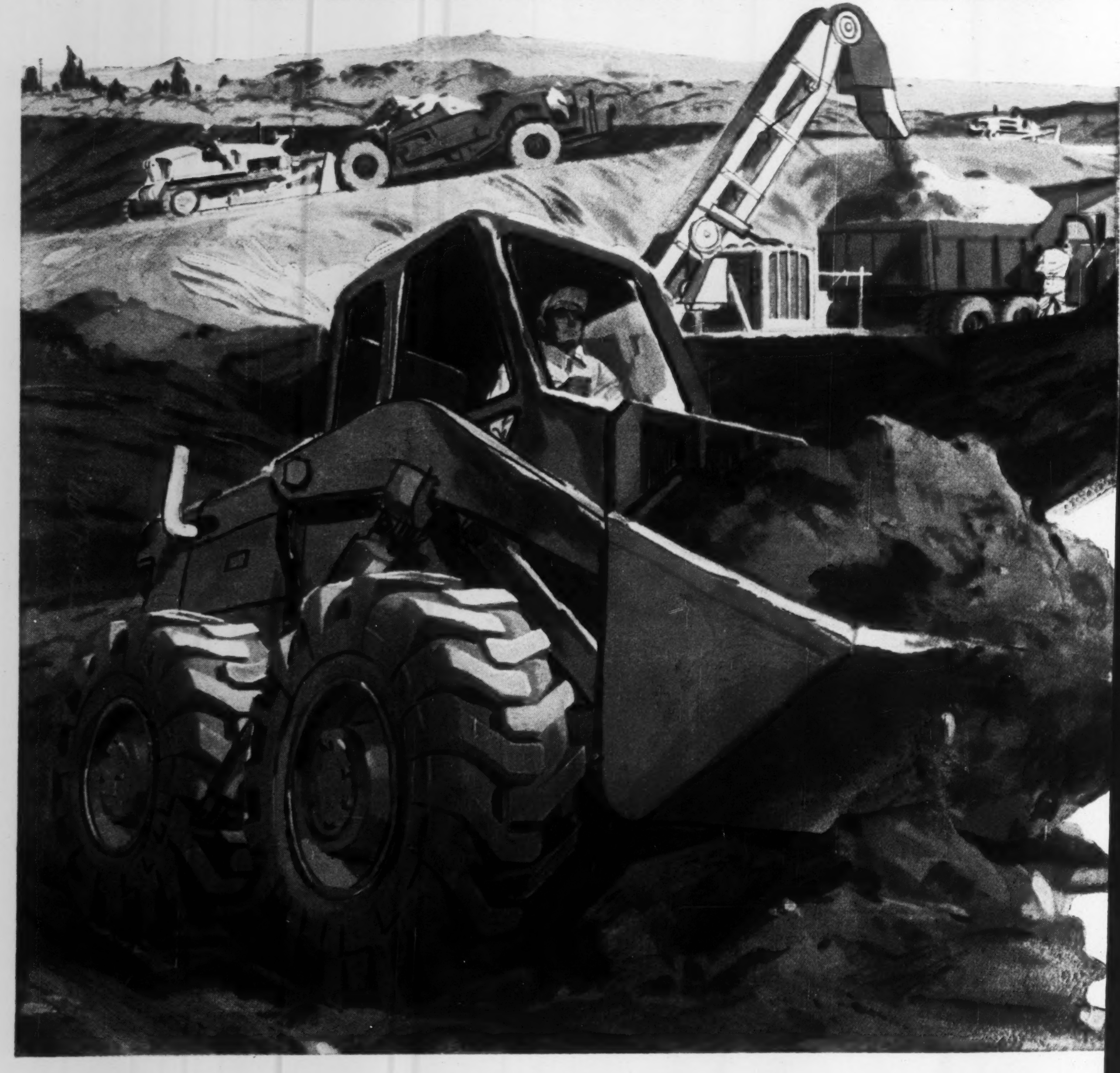

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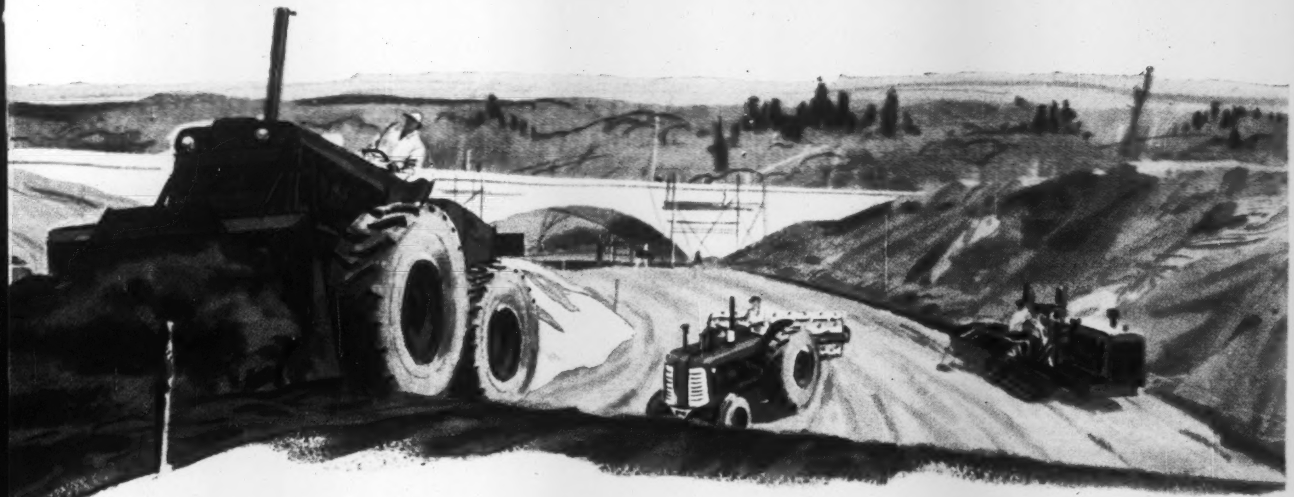

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(Continued from page 108)

F-202 (23) Cherry Co.; LB **$371,817** reconstr. granular subbase course, soil-aggreg. base course shoulder, constr. b. conc. surf. course and gravel surf. for detour, 16.9 mi. Neb. Hy. No. 3 between Neb. Hy. No. 78 and Neb. Hy. No. 14 and on Neb. Hy. No. 78 between Guide Rock and the Kansas State Line Projs. F-205 (18) S-218 (6) Webster and Nuckolls Counties; LB **$364,692** pavement, and b. conc. surf. course 7 8 mi. US Hy. No. 275 between Norfolk and Wisner Proj. F-70 (15) Stanton and Cuming Counties; LB **$95,548** grading, b. conc. surf. course 1 mi. secondary Hy. south of Brule, Projs. S-37 (4) Keith Co.;

Neb.—**Dobson Bros. Constr. Co.**, 823 First National Bank Bldg., Lincoln, Neb. LB **$144,866** grading, 2 bridges, guard rail, granular subbase course soil-aggreg. base course, b. conc. surf. course, gravel surf. for detour 3.5 mi. on Secondary Hy. between Staplehurst and Nebraska Hy. No. 15, Projs. S-624 (1) Seward Co.; LB **$217,745** subgrade reconstr., granular subbase course, soil-aggreg. base course, shoulder constr., b. conc. surf. course guard rail and gravel surf. for detour 6.8 mi. on Nebraska Hy. No. 79 between Valparaiso and Nebraska Hy. No. 2, Proj. S-338 (10) Saunders and Lancaster Counties.

Neb.—**Fremont Contractors**, 419 First National Bank Bldg., Fremont, Neb. LB **$1,085,696** c. conc. pavement and grading, crushed rock base course and gravel surf. for detour 17.7 mi. US hy. No. 77 between Beatrice and Kansas State line and on Nebraskas Hy. No. 3S between Barneston and US hy. No. 77 Proj. F-211 (9) Gage Co.; LB **$707,633**, c. conc. culverts and 5 bridges 9.2 mi. US hy. No. 75 between Dawson and Kansas State Line, Proj. F-208 (20) Richardson Co.;

Neb.—**Arnold Swanson Co.**, Hastings, Neb. LB **$498,838**, grading, pavement, 3 bridges and b. conc. surf. course 14.5 mi. US hy. No. 30 between Schuyler and North Bend, Projs. F-213 (3) F-309 (5) Colfax and Dodge Counties;

Neb.—**Robert M. Stump Constr. Co.**, Memphis, Neb. LB **$410,626** gravel-detour, guard rail subgrade reconstr., lime treated subgrade, granular fill, granular subbase course soil-aggreg. b. c. and shoulder constr., b. conc. S. C. 12.8 mi. between Humphrey-Leigh, Creston North, Leigh North Projs. F-468 (4) S 230 (3) S-652 (2) Platte and Colfax Counties. CD 2/13.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
April 2 California

STREETS AND ROADS
April 2, 3, 9 California

BUILDINGS—BA

▲ **Calif., Chino**—TRAINING SCHOOL—BA 4/16—State Div. Architecture, 1100 S. Grand Ave., Los Angeles, constr. training school incl. administration clinic hospital, chapel, housing unit gynmasium, swimming pool, kitchen commissary, shops etc. at Youth Training School, San Bernardino Co. $4,250,000. CD 1/27/56.

HEAVY CONSTRUCTION—LB & CA

▲ **Baldwin Contg. Co.**, P.O. Box 311, Marysville, Calif., LB **$1,208,000** (10 bidders), 1 story, mezzanine, 42,000 sq. ft., steel frame, tilt up constr., slab floor air terminal bldg., RENO, NEV. City, Mayor & City Council, City Hall, Reno, Nev. CD 2/5.

▲ **WASHINGTON**—State Hy. Comn., E. A. Cowell, chn., Olympia,

Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho and **Rumsey & Co.**, 3821 Airport Way, Seattle, Wash., CA **$2,978,878** (8 bidders), rein.-con. box girder and steel girder bridge on 0.87 mi. Primary State Hy. 1, for extension of Alaskan Way viaduct, Hanford St. to W. Dakota St., with draining, grading, surf., paving with asphalt and concrete and installation of illumination sys. King Co. Bids Feb. 18. CD 2/20.

▲ **N. Fiorito Co.**, 844 W. 48 St., Seattle, Wash., LB **$2,336,752**, est. $2,709,980 (6 bidders), 3,500 ft. extension of north-south runway, Larson Air Force Base, Inv. 58-20, MOSES LAKE, WASH. U. S. Eng., City-County Airport, Walla Walla, Wash., Bids Feb. 27. CD 1/21.

▲ **OREGON**—Oregon Hy. Comn., Highway Bldgs., Salem, Ore.—**Roy L. Houck & Sons**, 1585 N 20th St., Salem, Ore., CA **$1,262,693**, (7 bidders) Proj. FAIP 1-176 (19) paving North Jefferson Junction-North Albany Junction section, Pacific Highway, Marion and Linn Counties; CA **$295,492** (14 bidders) Proj. FAIP 1-35 (11) 0.36 mi. grading, 3.13 mi. stone base and paving West unit, a Shogren-Rowena section of Ore.-Columbia River Highway, Wasco Co.;

Ore.—**Babler Bros.**, 4617 SE Milwaukie Ave., Portland, Ore., CA **$161,626** (18 bidders) Proj. FAIP 1-35 (9), widen Shogren overcrossing of U.P. R.R. by constr. 394 ft. concrete structure, Columbia River Hy., Wasco Co. Bids Feb. 28. CD 2/19.

▲ **OREGON**—Oregon Hy. Comn., Highway Bldg., Salem, **Darkenwald Constr. Co. & Harms Bros.**, 2131 Fulton Ave., Sacramento, Calif., CA **$1,635,781**, Proj. FAP BF-124 (12), 3.93 mi. Thomas Creek-Cape Ferrelo section Oregon Coast Hy., Curry Co.;

Ore.—**Warren Northwest, Inc.**, Box 5072, Portland, Ore., CA **$603,772**, Proj. FAIP 1-78 (39), paving 6.07 mi. Myrtle Creek-Fords Bridge section, Pacific Hy., Douglas Co. Bids Feb. 6. CD 2/12, under LB.

BUILDINGS—LB & CA

▲ **Andersen & Westfall Co., Inc.**, 2470 N.W. Nicolai St., Portland, Ore., CA Est. **$3,500,000** (8 bidders), 7 rein.-con. bldgs. totaling 500,000 sq. ft. for WHOLESALE DISTRIBUTION CENTER, BELLEVUE, WASH. Safeway Stores, Inc., 1260 4 Ave. S., Seattle, Wash. Bids Feb. 18. CD 1/23.

▲ **F. E. Young & Twaits-Wittenberg Co.**, 507 S. Bixel St., Los Angeles 17, Calif. CA **$2,976,000**, est. $1,500,000, constr. Clarence Dykstra RESIDENCE HALL at UCLA, LOS ANGELES, CALIF. University of California, Bd. Regents, 405 Hilgarde Ave., Los Angeles, Calif. Bids Feb. 4, awarded Feb. 21. CD 2/10, under LB.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS
March 25 British Columbia

BUILDINGS—BA

▲ **N. B., Camp Gagetown**—HOUSING—BA 3/20—Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S., 187 Housing units with related services, P. M. Q. area, at Army Camp. $1,800,000.

BUILDINGS—SLC

▲ **Que., Boucherville**—HOUSING—Bourgel Constr. Ltd., Suite 700, 455 Craig St. W., Montreal soon lets contract 200 cottages and split levels, on newly sub-divided lots on outskirts of here. $1,800,000. Plans deposit $100. Noram Gagnon, P.O. Box 119, archt.

BUILDINGS—LB & CA

▲ **Nelson River Constr. Ltd.**, 101 Dawson St., Winnipeg, Man., CA, constr. outfall tunnel, in connection with Thermal PLANT, east side of Red River, SELKIRK, MAN. Manitoba Hydro-Electric Bd., 213-219 Notre Dame Ave., Winnipeg, Man. CD 2/14/56.

▲ **English Electric Co. of Canada**, 14 Strachan Ave., Toronto, Ont. CA Approx. **$2,000,000.** STEAM TURBO-GENERATOR for Thermo-Electric Generating Station (this plant will be known as Thunder Bay Generating Station) to have capacity of 100,000 kw with provision for enlargement to 1,000,000 kw as required, new plant will supply power to an area of 98,000 square miles, FORT WILLIAM, ONT. Hydro-Electric Power Comn. of Ontario, 620 University Ave., Toronto, Ont. CD 9/11.

▲ **Dr. Julius Kuhl**, c/o 538 Jarvis St., Toronto, Ont., Owner Builds, **$2,000,000**, 205 suite, 11 story, 78x262 ft. rein.-con. footings, brick bearing walls, concrete slab floors on steel joists APARTMENT, 518 Jarvis St., TORONTO, ONT. Bregman & Hamann, 7 Adelaide St. E., Toronto, Ont., archts. Farkas & Barron of Canada Ltd., 7 Adelaide St. E., Toronto, Ont., engrs.

▲ **Head Constr. & Supply Co. Ltd.**, 635 Tecumseh St. W., Windsor, Ont. CA **$1,585,000**. (5 bidders), 203 HOUSING UNITS, Federal-Provincial low-rental project, WINDSOR, ONT. Central Mortgage & Housing Corp., 40 Eglinton Ave. E., Toronto, Ont. and Ontario Dpt. Planning & Development, Parliament Bldgs., Toronto, Ont. Bids Feb. 13. CD 2/28.

▲ **Massicotte & Fils Ltd.**, 299 Blvd. Ste. Madeleine, Cap de la Madeleine, Que. CA Est. **$2,000,000**. four wing HOSPITAL addn., BAIE ST. PAUL, QUE. Hospice de Ste. Anne., operated by Petites Soeurs Franciscaines de Marie, Baie St. Paul, Que. Maurice Mainguy, 175 St. Jean St., Quebec City, Que., archt. CD 6/4.

▲ **Tellier & Groleau**, 2391 Place de Vaudreuil, Three Rivers, Que. LB **$1,867,784**. (12 bidders), 200 DWELLINGS, VALCARTIER, QUE. Central Mortgage & Housing Corp., Ottawa, Ont., M. P. McAndrew, regional constr. supt., 940 Cote de Liesse Rd., Montreal, Que. Bids Feb. 25. CD 2/6.

ALASKA

BUILDINGS—BA

▲† **Alaska, College**—LIBRARY-CLASSROOM, etc.—BA 4/23—Dpt. Interior, Alaska Pub. Wks., 123 W. 3 St., Juneau, 4 story 78,000 sq. ft. rein.-con. library, classroom administration bldg. for University of Alaska. $2,500,000. Plans deposit $25. Manley & Mayer, Anchorage, archts. CD 11/1/55.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲ **S.A.I.L.A.V., S.R.L.**, Buenos Aires, Argentina, LB **$37,300,000**, construct and finance tunnel under Parana River to join cities of Sante Fe and Parana, ARGENTINA. Ministerio de Obras Publicas, Avenida 9 de Julio No. 1925, Buenos Aires, Argentina. CD 1/17.

BUILDINGS—LB & CA

▲ **Walter Kidde Constructors, Inc.**, 140 Cedar St., New York, U. S. A. CA Est. **$2,000,000**. design and construct corn processing PLANT, CALI, COLOMBIA. Corn Products Refining Co., 17 Battery Pl., New York, N. Y., U. S. A.

FOREIGN

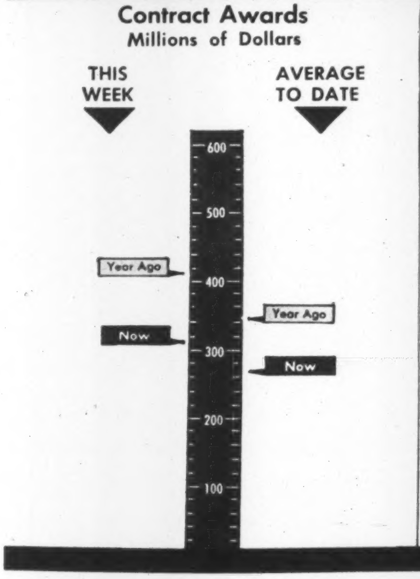
BUILDINGS—LB & CA

▲ **Humphreys & Glasgow**, 22 Caryle Pace Place SW 1, London, England. CA Est. **$18,000,000**. high pressure gasification PLANT, FIFE, SCOTLAND. Scottish Gas Bd., Westfield, Fife, Scotland.

(Proposal Advertisement see pp. 123 to 125)

Construction Scoreboard

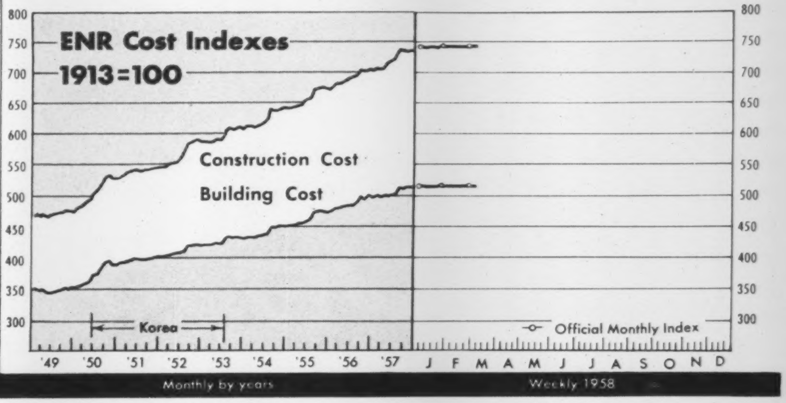
ACTIVITY THIS WEEK


Contract Awards
Millions of Dollars

COST INDEXES AS OF NOW

ENR INDEXES (1913=100), 20-cities' average	Week of Mar. 6 1958	% Change from Feb. 6 1958	% Change from Mar. 7 1957
Construction Cost	744.27	+0.07	+4.9
Building Cost	515.95	+0.03	+2.9

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518



AMOUNT OF CONTRACTS LET

By Ownership	This Week millions	Cum. 11 wks 1958 millions	Chge '57-'58 %
All Heavy Constr.	$313.1	$3,111.8	−19
Private	120.9	1,423.5	−24
Public	192.2	1,688.3	−14
State & Municipal	153.8	1,351.4	−6
Federal	38.4	336.9	−36
By Type of Work			
Public			
Waterworks	5.7	44.7	−41
Sewerage	18.4	120.7	+46
Bridges*	10.2	89.2	−32
Highways	70.2	487.4	−18
Earthwork, Waterways	2.4	142.1	−40
Buildings, Excl. Housing	43.4	451.9	−1
Housing	26.1	247.3	+91
Unclassified	15.8	104.9	−60
Private			
Mass Housing	43.6	473.2	−18
Commercial	47.8	373.5	+4
Industrial	27.9	468.4	−40
Unclassified	1.6	108.5	−30

* Includes private bridges.

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION

	Week of Mar. 6 millions	Cum. 10 wks 1958 millions	Chge '57-'58 %
Corporate Securities	$109.0	$1,081.4	−10
State and Municipal:			
All Except Housing	286.0	1,549.0	+50
Housing	...	1.0	−98
Federal Loans	4.9	45.7	+123
Federal Aid	...	....	...
Total Nonfederal	$399.9	$2,677.1	+17
Federal Appropriations:			
Projects in U. S.	...	520.0	...
Outside U. S.	...	....	...
Total New Capital	$399.9	$3,197.1	+39

CONTRACTS AWARDED

	1958 Feb. (millions)	1958 2-Mos. (millions)	% Change from 1957 Feb.	% Change from 1957 2-Mos.
Total U. S., ENR reported	$1,174.8	$2,433.6	−18	−21
Private	613.1	1,134.3	−23	−26
Public	561.7	1,299.3	−12	−17
State and Municipal	424.5	1,035.7	−10	−9
Federal	137.3	263.6	−18	−37
ENR Volume Index, 1913=100	446	407	−18	−22

NEW CAPITAL FOR CONSTRUCTION

Total U. S.	$1,825.8	$2,797.2	+88	+40
State and Municipal Bond Sales	718.7	1,264.0	+47	+35
Corporate Security Sales	576.1	972.4	+21	−7
Federal Loans, Aid (nonfederal work)	11.0	40.9	+86	+115
Federal Appropriations (federal work)	0.5	0.5	....	....

MATERIALS SHIPMENTS

	Unit	1957 & 1958 Nov. (N) Dec. (D) Jan. (J)	Cum. (No. of Mos.)	Percent Change from Year Ago Mo.	Cum.
Portland Cement, Bur Mines	thous bbls	16,834(D)	289,110(12)	−6	−6
Concrete Paving Awards, PCA	thous sq yd	5,488(J)	5,484(1)	−23	−23
Fabricated Structural Steel	thous tons	317(J)	317(1)	+ 9	+ 9
Bookings, AISC	thous tons	162(J)	162(1)	−49	−49
Reinforcing Bars, Net, AISI	thous tons	118(D)	2,305(12)	−51	− 8
Lumber, NLMA	mil fbm	2,529(D)	33,609(12)	− 5	− 8
Orders	mil fbm	2,344(D)	33,492(12)	− 5	− 7
Production	mil fbm	2,192(D)	33,391(12)	−13	−11
Douglas Fir Plywood, DFPA, 3/8" basis					
Production (average per week)	mil sq ft	106.4(J)	106.4(1)	+12	+12
Orders (average per week)	mil sq ft	100.8(J)	100.8(1)	+13	+13
Clay Products, Bureau of Census					
Brick, Unglazed, Common, Face	mil bri	478.2(N)	5,709.6(11)	− 7	− 9
Vitrified Clay Sewer Pipe	thous tons	117.1(N)	1,550.7(11)	−18	−11
Structural Tile, Unglazed	thous tons	38.7(N)	540.8(11)	−26	−14
Asphalt Products, Bureau of Census					
Asphalt Roofing	thous sales sqs	2,610.1(D)	53,632.7(12)	+21	− 7
Asphalt Siding	thous sales sqs	49.0(D)	1,048.3(12)	−26	−13
Aluminum, Wrought, Net, Bureau of Census					
Sheet and Plate (non-heat treatable)	mil lbs	59.6(D)	946.2(12)	− 5	−10
Wire and Cable	mil lbs	21.4(D)	276.9(12)	−11	− 9
Extruded Shapes (soft alloys)	mil lbs	47.0(D)	644.7(12)	+ 8	+ 1

EMPLOYMENT AND FAILURES

Contract Const Employment, BLS	thous	2,570(J)	2,570(1)	− 4	− 4
Contractor Failures, Dun & Bradstreet					
Number		176(J)	176(1)	− 1	− 1
Liabilities	thous	$9,868(J)	$9,868(1)	− 8	− 8

Anti-Recession Guns Primed and Aimed

President Eisenhower urges faster public works, highway spending as unemployment rise continues

The recession issue, as expected, is fast becoming the number one political issue in Washington, with the President and the Administration attempting to keep control against major attacks from the Democratic majority in Congress.

This week in Washington there was more activity going on in the economic area than perhaps any similar period since late 1950 when the government decided it had to put in emergency measures to cope with the Korean War. Certainly, the business downturns of 1949 and 1954 in no way prompted the proposing of anti-recession programs of the types that now are seriously under consideration.

- The Senate debated a new omnibus housing bill, which included features for quick aid aimed at bolstering that industry.
- The Senate public works subcommittee on highways heard the Administration's proposals for a speeded up roadbuilding program, and Sen. Albert Gore of Tenn., and his colleagues, drafted even more ambitious legislation with a billion-dollar-plus price tag on it.
- The Corps of Engineers, Bureau of Reclamation and the Agriculture Department were taking the instructions from President Eisenhower, who over the weekend urged government agencies to speed up spending by determining what flood control and conservation projects may be accelerated now.

The announcement on Tuesday that unemployment in February reached a new postwar high of 5,173,000 was a hard blow to the Administration, which had hoped the figures would begin to show that a spring upturn in business may be at hand.

But the news was even darker than expected—the number of jobless went from 4.5 million in January to 5.2 million in February, and government experts fear that the increase will continue through March and into April. One estimate: over 6 million in April.

The same dark figures came from a new report on the claims of jobless for unemployment compensation in the several states. The number of people on unemployment benefits increased in the last week by 137,000, to a total of 3,268,000.

So, the two basic indicators of employment both will show a percentage figure of more than 7%; that is, about 7.5% of the total work force was out of work in February; and 7.9% of workers insured for unemployment compensation were jobless the week ending March 1.

• Emergency action requested—President Eisenhower, after a long conference last Saturday morning with Senate Republican leader William F. Knowland, released a letter he had addressed to the Senator and House Republican leader Joseph W. Martin in which he called for emergency action. He said he was calling for Republicans to back his Administration in order to offset the more grandiose projects of the Democratic majority in Congress.

His program calls for a step-up in 100% federally financed roadbuilding (National Park roads, Indian reservation roads), for release of new mortgage funds to spur housing, for all practicable speedup in public works.

Republicans in general have swung behind the President, but some of his party in Congress are saying, "not enough." One, Rep. Richard Simpson, of Pennsylvania, a top ranking member of the tax writing Ways and Means Committee, came out for a $10 billion tax reduction program.

Here is a point by point rundown of where the various anti-recession programs rest:

I. Unemployment

The Administration has come up with its own plans to provide federal money for those unemployed who have exhausted their unemployment compensation benefits. It's an answer to Democrats—led by Sen. John Kennedy, among others—who want to fix federal minimums on weekly unemployment compensation checks and the number of weeks they can draw them. The average now runs about $30 per week for 26 weeks. The Democrats would specify a minimum of 50% of the worker's average weekly wages for a maximum of 39 weeks.

The problem is that it could take years for state legislatures to pass such legislation; weekly amounts and duration of unemployment compensation is up to them, now. Senator Kennedy and Rep. Eugene McCarthy of Minnesota propose a federal subsidy for the short term. So would the Administration.

President Eisenhower's proposals would make an all-federal payment to those hardest hit by unemployment by contributing to states who find their unemployment compensation reserves running dry.

II. Housing

Democrats in Congress are trying to force their own bill through Congress, despite Republican support for President Eisenhower's new proposals. The bill by Sen. John Sparkman of Alabama proposing close to $2 billion in new and added programs, will get quick action by the House Banking and Currency Committee, and be ready for the House within the next week or so. Senator Sparkman prepared for the Senate fight this week by making modifications in his original proposal.

• A second bill to come—Following later on the Democratic schedule will come a second housing bill to wrap up the customary annual housing amendments plus provisions for urban renewal, public housing and the college housing loan program. These items are omitted from Senator Sparkman's measure, but are covered in the conventional omnibus bill sent up by the Administration.

Salient features of the two bills are list in the box (page 116). Senator Sparkman's measure, as voted out last Thursday by the Senate Banking Committee, would plow $1.85 billion of new funds into home financing, but the Administration bill calls for only $290 million next year to keep present loan programs going—plus a six-year urban renewal authorization that includes $250 million for additional grant reservations to the cities in fiscal 1959.

Senator Sparkman's bill would give $1 billion immediately to the Federal National Mortgage Assn. (Fannie Mae) for purchase of FHA and VA mortgages up to $13,500. This money is earmarked for new houses exclusively, to boost home construction in the lower cost ranges.

Further, the bill gives $500 million to the President to be used at his discretion for Fannie Mae buying of government-underwritten mortgages generally. President Eisenhower last week showed willingness for the first time to release money for this purpose from

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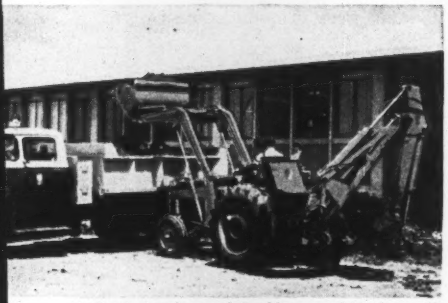

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Democrats vs Administration on Housing

	SENATE BILL	*ADMINISTRATION BILL*
New Money:	$1,850,000,000	$290,000,000
For These Purposes:	$1 billion to FNMA for mortgage purchases, (see Federal National Mortgage Assn., below). Another $500 million to be used at President's discretion. $300 million for veterans' direct loans. $50 million for military housing.	$200 million for college housing loans. $90 million to Federal National Mortgage Assn. (Fannie Mae) to buy military and "elderly" housing mortgages.
Veterans:	Extend programs for World War II veterans and for direct loans two years to July 25, 1960. Raise interest rate ceiling from 4½% to 4¾%, and abolish discount controls.	Nothing proposed: World War II and direct loan programs to end this summer.
FHA:	Lower downpayment requirements to 3% of first $13,500 of value (now $10,000). Eliminate discount control. Other proposals to come in another housing bill.	Increase mortgage insurance authority for five years, up to $3 billion in any one year; raise mortgage maximum from $20,000 to $30,000, repeal discount controls.
Federal National Mortgage Assn.	Set up special new $1 billion revolving fund to buy FHA and GI mortgages of $13,500 or less.	Increase limit on purchasable mortgages from $15,000 to $20,000.
Urban Renewal:	To come later in separate Democrats' bill.	Authorize six-year program totaling $1.35 billion in federal grants.
Public Housing:	To come in later bill.	Extend time limit on units now authorized, with no additional units for next year.
College Housing:	To come in later bill.	Increase the loan fund to $200 million and raise the interest rate on loans.

the tightly held $450 million already at his disposal. He gave Fannie Mae $200 million to buy mortgages up to $10,000 on new houses only.

• **Revival for VA loans**—A second big anti-slump feature of the Sparkman bill would buck Presidential policy by extending GI home loan programs both for World War II veterans and for direct loans to July 25, 1960, two years beyond present termination dates this summer. For direct loans, the bill would give VA $300 million. In addition, the interest ceiling on VA mortgages would be increased at once from 4½% to 4¾%, just ½% under the FHA rate, with the provision that this difference must be maintained if the FHA should lower its rate.

Equally important, the Senate measure would abolish discount controls both for VA mortgages and for FHA mortgages. These controls have obstructed private mortgage lending under both programs in the last year. The House Veterans Affairs Committee is expected to give reluctant approval to the changes in GI interest ceiling and discount control requirements.

To aid home buyers, the Sparkman measure would lower FHA downpayments by authorizing a 3% minimum for the first $13,500 of value instead of the first $10,000 as at present. The rest of the downpayment requirements would remain unchanged; 15% of the next increment ($2,500 under the Sparkman bill) up to $16,000 of house value, and 30% for the excess above $16,000.

III. Highways

Senator Gore's bill to pump more federal money into highway construction will come next on the Senate calendar. Senator Johnson hopes to have the measure out of the Public Works Committee and before the Senate by next week.

The Gore bill proposes to pay the federal 50-50 share of construction on the primary and secondary systems and their urban connections (the ABC systems) out of general revenues after July 1. This shift would release the entire amount of receipts coming into the highway trust fund for 90% federal payments on the interstate system.

With the additional trust fund money thus released, Senator Gore would increase the presently authorized interstate allocations by more than $11 billion: $500 million extra for next year starting July 1 (fiscal 1960), $800 million additional for fiscal 1961, $999 million more for each of the seven years 1961-67, $1.6 billion extra for

1968 and nearly $2 billion additional for 1969.

Under the Gore bill, highway construction on the ABC systems would get increased federal financial assistance for the fiscal year starting July 1. This assistance would be provided under a two-part plan to make sure that the states could match the extra 50-50 federal money.

Senator Gore's measure calls for $450 million of additional ABC allocations to the states next year to supplement the $875 million previously authorized. Second, the bill sets up an equal sum of $450 million for advances to the states to match ABC authorizations for fiscal 1959 and prior years, these advances to be paid back by the states in later years out of their ABC apportionments for 1964 or thereafter.

President Eisenhower's plan would increase federal highway allocations by $2.2 billion for the three fiscal years, 1959-61. He will ask Congress to remove present spending limitations for those years. He wants to step up the federal contribution for those years to $6.6 billion from the $4.4 billion now authorized.

IV. Public Works

Democrats in Congress are making much bigger plans for public works than anything the White House has talked about so far. A month ago, the Administration announced a $2 billion three-to-five-year program to modernize post office buildings and equipment, based on increased receipts from higher postal rates.

President Eisenhower last Saturday expanded his list of speeded-up federal civil works programs. Removal of the Administration's earlier brakes on spending, plus recent orders from the White House to push work for which Congress has voted funds, will step up expenditures on civil works by $200 million in the next few months, the President indicated.

In addition, for the fiscal year beginning July 1, President Eisenhower announced that supplemental appropriation requests asking $186 million more for three water resources programs were to reach Congress this week. They are: $125 million for the Corps of Engineers, $46 million for Reclamation and $15 million for Agriculture's watershed projects. Also, about $25 million is to be sought to start local reclamation projects authorized by the Small Projects Act.

It is doubtful if these increases will satisfy Congress. Rep. Clarence Cannon, traditionally tight-fisted chairman of the House Appropriations Committee, already had sent back the original budget requests of the Army Engineers and Reclamation with directions to bring back "adequate" money programs for fiscal 1959.

Democrats realize, too, that federal public works alone cannot take up much of the slack in event of a serious drop in construction. On this front, Rep. Albert Rains and 12 other Democrats on the House Ways and Means (tax) Committee this week planned a bill authorizing $2.5 billion for construction loans to municipalities for sewer, water works, treatment plant and other such projects.

Tennessee's Bond Act Held Constitutional

Tennessee's industrial bond act allowing the sale of bonds to finance construction of manufacturing plants has been ruled constitutional by Chancellor S. A. Marable. Robert B. McConnell, former commissioner of finance and revenue of Lebanon, Tenn., filed the friendly suit in order to test the act's validity.

Mr. McConnell petitioned for a declaratory judgment on the industrial bonds act and a $650,000 bond issue sold by Lebanon to establish a luggage plant in the city.

In his opinion, Chancellor Marable held that the purpose of the act was a public one in that it was aimed at the acquisition and promotion of industry which is for the public good. Mr. McConnell argued that the act could be unconstitutional because it benefited private corporations.

The chancellor also said that even if the purpose of the act were not for the public good, it would be constitutional because it provides that such bond issues be approved by a three-fourths majority of the municipality's voters.

The industrial building and bonds act was passed in 1955.

AF Barracks to Get a New Look

Mather Air Force Base near Sacramento will get a "new look" in barracks this year or next with the start of construction on an eight story officers' quarters building for 408 men.

Original plans called for a series of two-story structures, each accommodating 40 men. The estimated cost ran too high, so the type of structure illustrated was decided upon.

The building, first of its type in the continental U.S., may serve as a prototype for future construction at Air Force installations, although buildings of the same type are located at installations in Labrador and Newfoundland.

Cost is expected to be approximately $5 million. It will be built by the Sacramento District of the Corps of Engineers. The building, containing 160,000 sq ft, will be exposed concrete with aluminum windows and louvers for control of the sun's rays. Electrical, plumbing and air-conditioning equipment will be in the basement and utilities will extend through the building in vertical-type chases.

Construction bids are expected to be called in October. Site planning provides for future construction of two identical buildings at the base which is being converted for the Strategic Air Command at a cost of $20 million.

Daniel, Mann, Johnson & Mendenhall, Los Angeles, are the architects-engineers.

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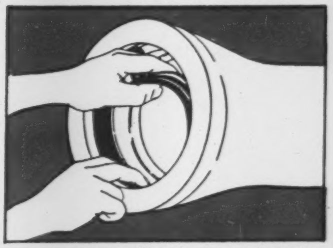
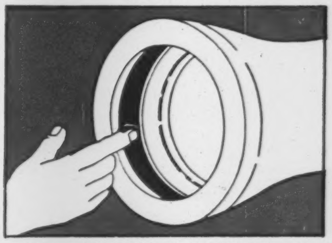
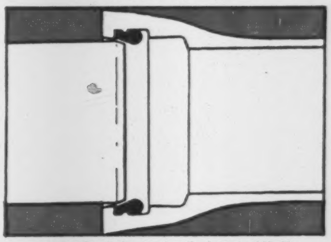


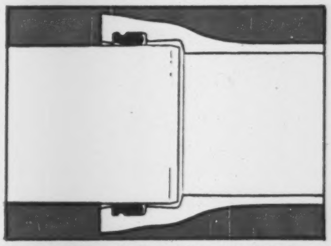
Insert gasket with groove over bead in gasket seat



Wipe a film of special lubricant over inside of gasket



Insert plain end of pipe until it contacts gasket



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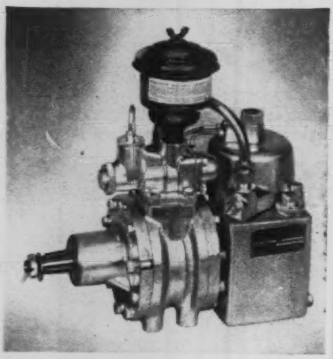

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LOW FRICTION LOSS All rotating parts are turned by the rotor shaft, suspended on two bearing surfaces.

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The Wagner Rotary Air Compressor pumps compressed air into the air reservoir, providing the pressure required for the operation of brakes and other air powered devices. The compressor runs continuously while the engine is operating. Pumping is regulated by a control valve which starts or stops air compression by "loading" or "unloading" the compressor proper. This action establishes an intermittent pumping cycle which keeps reservoir pressure within the desired range.

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For details on these compressors, Wagner Air Brake Systems and Equipment for trucks, tractors, trailers, buses and off-the-road equipment . . . request a copy of Catalog KU201B.

Wagner Electric Corporation
6380 PLYMOUTH AVENUE, ST. LOUIS 14, MO., U. S. A.
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KU201B
Wagner
AIR BRAKE
EQUIPMENT

WK58-2A

Over 2,400 AFL-CIO construction workers meet in Washington to launch the . . .

Building Trades' Legislative Program

The AFL-CIO Building and Construction Trades Department held its fourth—and most successful—annual Legislative Conference in Washington, D. C., last week. Results shaped up like this:

▶ Despite anti-union sentiment generated by Senate McClellan committee investigations, members of Congress are generally sympathetic to the aims and purposes of the trade union movement.

▶ There's little chance of getting any labor legislation—either favorable or detrimental to unions—through Congress this year. This virtually rules out the possibility of any amendments to the Taft-Hartley Act.

▶ Labor can muster considerable Congressional support for moderately improved federal-aid programs in the fields of housing and hospital construction to stimulate the nation's economy and to get some of the country's nearly 5 million jobless back to work.

▶ Efforts to adopt a comprehensive school construction program seem destined to failure again because of the states' rights issue and the difficulty of agreement on a formula for allocation of funds.

▶ There's little Congressional controversy over the merits of higher and longer unemployment compensation benefits or of some extended coverage under the minimum wage law. But members of Congress are now inclined to leave specific improvements up to the states, although some form of emergency federal assistance to jobless workers seems likely (see page 114).

▶ The desirability of modernizing the Davis-Bacon Act (prevailing wage law) is generally conceded but will be pushed aside by more pressing matters.

Net result is that the building trades seemed assured of getting some federal action to stimulate construction and ease unemployment—now hitting an estimated 25% of the construction workers in some states.

But in the field of general labor legislation, the unions will be fighting a defensive or holding action, not an offensive one. And by necessity they will be placing greater emphasis on protecting their existing rights before state and federal courts and agencies, some of which they accuse of undermining trade unionism by rewriting present laws.

Examples of the latter, according to building trades' spokesmen, are recent clamp-downs on union picketing, subcontracting clauses, closed shop and hiring hall arrangements, and a prevalent denial of travel allowance deductions for income tax purposes to construction workers forced to find temporary employment away from home. Under the subcontracting clauses and hiring hall arrangements, contractors are now involved as seriously as the unions are.

• **The program**—Under the leadership of Building Trades' President Richard Gray, the department's legislative program was presented to senators and congressmen by 2,400 AFL-CIO union construction workers who had converged on Washington from 46 states for that purpose.

The program, which is concerned first with mounting unemployment and then with legislative reforms sought by labor, embraces seven objectives:

1. Passage of realistic housing and slum-clearance legislation that would stimulate FHA and VA home loans; set up a 10-year construction program for 200,000 low-rent public housing units a year for low income families; authorize a 10-year, $500 million a year slum clearance and urban renewal program;

and provide low-cost loans for middle-income housing.

2. Extension for another 10 year period of the Hill-Burton Act which provides assistance to states for hospital construction, and an increase in its annual authorization to $400 million.

3. Passage of the Kelley bill (HR-1) which would provide about 30,000 new classrooms a year under a $3.6 billion, five-year school construction program.

4. Adoption of new unemployment compensation standards that would ease eligibility requirements and boost benefits by setting maximum weekly benefits at not less than two-thirds of the state's average weekly wage, payable for at least 39 weeks.

5. Expansion of minimum wage coverage to give more construction workers both minimum wage and overtime pay protection.

6. Modernization of the Davis-Bacon (prevailing wage) law to cover all federally assisted construction work, to include fringe benefits in wage determinations, to put hours of work and overtime on a prevailing basis, and to centralize the law's enforcement.

7. Amendment of the Taft-Hartley Act in these respects: legalization of pre-hire union shop agreements; legal approval of employer contributions for apprentice training; elimination of the mandatory injunction; repeal of Section 14 (b) that allows states to pass right-to-work laws (see next column); modification of the secondary boycott provisions to permit union construction workers to refuse to work with nonunion men.

Defensive aspects of the program include opposition to all legislative proposals inimical to the welfare of unions. Singled out for attack were two bills viewed by the building trades as aimed at the destruction of organized labor—S. 3065 introduced by Senator Knowland for the regulation of the internal affairs of unions, and one introduced by Senator Goldwater that would so change the union security provisions of the Taft-Hartley Act as to establish a national right-to-work law.

On the economic issues, the building trades were assured of the "complete cooperation of the AFL-CIO" by President George Meany, who has called repeatedly for an immediate increase in mass purchasing power to stem the tide of recession.

• Subcontracting, hiring—In launching its positive program for legislative action, however, the Building Trades Department did not overlook what it considers an urgent need for action on another front—prevention of legislation by indirection.

PRESIDENT GRAY stresses unemployment as significant factor in legislative goals.

Here the principal target was the National Labor Relations Board, which is accused of amending the Taft-Hartley Act by administration and of reversing the "basic principles established by Congress over a decade ago."

Source of greatest alarm are a still unpublished NLRB decision seriously questioning the legality of labor contract clauses imposing on subcontractors union security provisions agreed to by general contractors, and revival of a doctrine known as the Brown-Olds rule that makes contractors and unions liable for all dues, assessments, initiation and work permit fees collected under any hiring hall arrangement the NLRB may consider illegal. The building trades claim the Brown-Olds rule could bankrupt unions and contractors alike.

The Union Shop Issue

Right-to-work campaigns under way in 12 areas

One of the hardest fought battles in state legislatures and elections this year will concern the "right-to-work" question. Attempts to ban the union shop are making it a dominant issue in 12 states, and the topic of serious discussion in many others. The outcome of these campaigns will have a pronounced effect on local labor-management relations in the construction industry.

The Taft-Hartley Act, which bars the closed shop, specifically allows the union shop (making union membership a requisite for employment by the end of a 30 day period). However it further provides that the states may individually outlaw this practice. At the present time 18 southern and western states have such "right-to-work" laws in effect.

Politically the issue is chiefly bipartisan with most of the action supported directly by pressure groups: Business interests and agricultural groups (where they have committed themselves) being the principal advocates and organized labor being strongly opposed. Campaigns in each state are being carried out by citizens' committees for right-to-work.

Two methods are being employed in efforts to bar the union shop. Delaware, Maryland, Rhode Island and Washington State legislatures have "right-to-work" bills under consideration. In Louisiana, proposals for both legislation and constitutional amendment—the second method—are in process. Constitutional amendments have been proposed in seven other states.

The proposed legislation in five of the states, if passed, would immediately result in a "right-to-work" law or would, by the initiative process, place the issue on the November election ballot. In the State of Washington the initiative is being employed to force the legislature to take action on a "right-to-work" bill.

One facet of the controversy is the question of the title of the various proposed bills and amendments. The opponents of these measures insist that the title, "right-to-work," is misleading in that such laws do not guarantee the right to work, but serve to prevent agreements which discriminate against workers on the basis of nonmembership—or membership—in unions. Last week, for example, the Colorado Supreme Court upheld a refusal to include the phrase "freedom to work" in the descriptive title of an initiative now being circulated in the state.

The California situation is unique in that there have been previous "right-to-work" laws, but not at the state level. Five ordinances have been enacted—four county and one municipal—which have met with varying success. Rulings in four instances have found one law constitutional, two unconstitutional and the last without effect in incorporated areas. (The fifth law has not yet received a ruling by the court.) In this state the issue will play an important part in the November gubernatorial election.

It is too early for many predictions to be made regarding the results of these contests.

Regardless of individual outcomes, the current over-all outlook is a general swing of public sentiment toward right-to-work measures.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division,
Engineering News-Record
P.O. Box 12
New York 36, N. Y.

Bids: April 3, 1958.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., eastern standard time, on the 3rd day of April 1958, by Henry A. Cohen, Director Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following Projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Livingston (Rte. 36)	FARC 58-9	Caledonia-Mt. Morris, Part 1, S.H. 5593 Project S-172(2)	1.32	Asphalt Concrete = 1.30 Mi. Misc. Work = 0.02 Mi.	$20,000 Plans $3	$371,000
Monroe	FIC 58-2	Interstate Route No. 580-2-6 (Rochester City-Eastern Expressway, Pts. 2 and 3) Project I-1107(6)	2.50 (3.43 Acc.)	9″ Cement Concrete Pavt. = 2.20 Mi.; Asphalt Concrete Pavt. = 0.29 Mi.; Misc. Work = 0.01 Mi. Including 3 H.G.S. and R.P.G.S. Comp. I-Beams, 1 @ 238′, 2 @ 159.4′; 4 H.G.S. Comp. I-Beams 154′, 118′, 164.2′; 133.3′; 1 Ped. Overpass I-Beam 203.2′	$400,000 Plans $20	$7,309,000
Orleans (Rte. 104)	FARC 58-11	Gaines-Murray, Pt. 1, S.H. 8237; Gaines-Murray, Pt. 2, S.H. 5697. Project F-366(3)	7.24	Asphalt Concrete = 7.19 Mi. Misc. Work = 0.05 Mi.	$26,000 Plans $2	$470,000
Orleans (Rte. 237)	FARC 58-10	Clarendon-Holley (Clarendon-Genesee Co. Line, Pt. 1), S.H. 391. Project S-408(2)	0.26	Asphalt Concrete = 0.22 Mi. Misc Work = 0.04 Mi.	$2,700 Plans $2	$49,000
DISTRICT No. 8, K. G. RAUER, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Rockland (Rte. 59)	RC 58-12	Knapps Corners-Nyack, S.H. 5178	0.14	Asphalt Concrete = 0.14 Mi.	$3,000 Plans $2	$53,000
Westchester (Rte. 127)	FARC 58-18	Lake St., Ridge St., and Harrison Ave., S.H. 1457 White Plains Town Line-Harrison, S.H. 780 Project S-468(1)	0.96	Asphalt Concrete = 0.95 Mi. Misc. Work = 0.01 Mi.	$24,000 Plans $2	$439,000
DISTRICT No. 10, M. E. GOUL, District Engineer, 325 W. Main Street, Babylon, L. I.; New York						
Nassau & Suffolk	NSP 58-2 SAGSP 58-1 CAPSP 58-1 SSP 58-2 WSP 58-1	Northern State Parkway Sagtikos State Parkway Captree State Parkway Southern State Parkway Wantagh State Parkway	38.10	Fencing	$12,000 Plans $2	$219,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds.

Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Bids: April 18, 1958.

Construction of Flow Units Hiawatha Treatment Plant Metropolitan Syracuse Treatment Plant District Onondaga County, New York

ADVERTISEMENT
NOTICE TO CONTRACTORS

Separate sealed bids for the construction of the Flow Units, Metropolitan Syracuse Treatment Plant District, will be received for the Onondaga Public Works Commission by the County Purchasing Agent, in Room 102, County Office Building, 600 South State Street, Syracuse 2, New York until 2:00 P.M., Eastern Standard Time, April 18, 1958. Bids will be publicly opened and read aloud in the Conference Room on the 7th floor of the County Office Building. Bids will be received for:

Contract No. 9 — General
Contract No. 10 — Low Lift Pumping Equipment
Contract No. 11 — Heating and Ventilating
Contract No. 12 — Electrical
Contract No. 13 — Plumbing
Contract No. 14 — Electrical Equipment

These Contracts are for the second major stage of construction of a 50 mgd Chemical Precipitation Sewage Treatment Plant and provide for the construction of the following:

Diversion Chamber
Screenings & Grit Building
Administration Building with office areas, and low lift pumping station and wet well
Pipe and Personnel Galleries
Two Flow Control Structures
Six Circular Flocculation and Settling Tanks, each 122 feet in diameter and 10 feet deep
Effluent Pumping Station Wet Well
Outside Piping

Modifications to Existing Structures

Bidders may submit proposals on any Contract or on any combination of Contracts but not on any part of any Contract.

Copies of the Information for Bidders and all Contract Documents, including separately bound Drawings, may be obtained only from the Onondaga County Purchasing Agent, upon deposit of fifty dollars ($50.00) per set. Any bidder submitting a sealed bid, upon returning the drawings in good condition within thirty (30) days of the award of the Contract or rejection of bids will be refunded the full amount of his deposit. Any non-bidder upon similarly returning full sets of Contract Documents, including separately bound Drawings will be refunded forty dollars ($40.00) per set.

Copies of the above described Contract Documents may be examined at no expense at the office of the Purchasing Agent, at the office of the Onondaga Public Works Commission, County Office Building, 600 South State Street, Syracuse 2, New York; at the office of O'Brien & Gere, Consulting Engineers, 400 East Genesee Street, Syracuse 2, New York; or at the office of the Syracuse Builder's Exchange, 1045 James Street, Syracuse 3, New York.

The right is reserved to waive any informalities in the bids and to reject any or all bids.

ONONDAGA COUNTY, NEW YORK
By: Robert W. Sollinger,
County Purchasing Agent

Dated: March 5, 1958

U. S. Government

Sealed bids will be received in the office of the Engineering and Construction Director, Panama Canal Company, Balboa Heights, Canal Zone, until 1:00 P.M. March 26, 1958 and at that time publicly opened, for the work and material required in the construction of R.O.T.C. activities facilities at Balboa, Canal Zone. The work consists of building one new masonry auditorium seating 600, complete with stage, and band, choir, rehearsal, recording rooms. Also, one new R.O.T.C. masonry building with cafeteria and appurtenant facilities. Data are available for examination in the office of Chief, Procurement Division, Panama Canal Company, 21 West Street, New York 6, N. Y. Complete sets of data may be obtained upon payment of $50.00 deposit which will be refunded if data are returned within 40 calendar days after bid opening. Telephone Bowling Green 9-5380, extension 130.

Bids: April 1, 1958

Toledo-Lucas County Port Authority
Toledo, Ohio

PORT OF TOLEDO—PRESQUE ISLE SITE

NOTICE IS HEREBY GIVEN by the Board of Directors that Sealed Bids will be received by the Toledo-Lucas County Port Authority for:

STAGE I—CONTRACT 1
DREDGING, BULKHEAD CONSTRUCTION AND HYDRAULIC FILL

Construction of the Port of Toledo—Presque Isle Site.

The principal items of work are:

Estimated	Item
Lump Sum	—Clearing Site
Lump Sum	—Approximately 3,400 linear feet of earth dike construction including trenching
Lump Sum	—Approximately 1,000 linear feet of steel sheet pile bulkhead
300,000 Cubic Yards	—Removal of Silt
400,000 Cubic Yards	—Dredging for Filling
9,000 Tons	—Riprap slope protection on 6 inch gravel bedding

Bids for the above described work will be received at the offices of the Toledo-Lucas County Port Authority, 241 Superior Street, Toledo 4, Ohio, until 10:00 A. M. (EST), April 1, 1958 and will be publicly opened and read aloud immediately thereafter at the offices of the Authority.

Bidders must file with the Authority at least ten days prior to the time of receipt of bids, a confidential Financial Statement and Experience Questionnaire on form furnished by the Authority. Plans, Specifications, Proposal and forms of Proposal Bond, Contract and Contract Bond are on file at the offices of the Toledo-Lucas County Port Authority, 241 Superior Street, Toledo 4, Ohio, and the offices of the Engineers Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York 6, New York where they may be inspected by prospective Bidders during office hours.

Plans and Specifications (including Proposal Form, Proposal Bond Form, Contract and Contract Bond Form) will be furnished to prospective bidders for $25.00 per set. No refund will be made for any of the above stated charges.

Proposals must be submitted on the form furnished by the Authority; must contain the name of every person interested therein and shall be accompanied by a Proposal Bond, with satisfactory surety, in an amount of not less than two and a half percent (2½%) of the total amount bid, specifying the Toledo-Lucas County Port Authority as the obligee, and a certified check on a solvent bank or a cashier's check, in the amount of not less than two and a half percent (2½%) of the total amount bid, subject to the conditions stated in the Specifications.

The successful Bidder will be required to furnish a satisfactory Performance Bond. Any bid may be withdrawn prior to the scheduled closing time for receipt of bids. The Authority reserves the right to reject any or all bids and to waive any technicalities as it may deem best for the interest of the Authority.

NOTE: Plans and Specifications will not be mailed prior to the receipt of payment of cost shown in this Advertisement.

TOLEDO-LUCAS COUNTY PORT AUTHORITY
W. W. Knight, Jr.—Chairman
E. O. Jewell—General Manager

Bids: March 20, 1958.

Soil Exploration and Foundation Investigation

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m. Eastern Standard Time, on March 20, 1958, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred Smith State Office Building, Albany, New York for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON HAWTHORNE INTERCHANGE, H. C. 4349, WESTCHESTER COUNTY, WHICH CONSTITUTES CONTRACT SPEC. NO. SM-122.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.
(b) Mr. K. G. Rauer, District Engineer, New York State Department of Public Works, Pleasant Valley Road, Poughkeepsie, New York.
(c) Mr. William M. Trainer, Associate Contract Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50 percent of deposit. The Engineer's Estimate of cost for this work is $27,700.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,000.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders."

The right is reserved to reject any or all bids.
JOHN W. JOHNSON
SUPERINTENDENT OF PUBLIC WORKS

Bids: March 27, 1958

Power Authority of the State of New York

ADVERTISING FOR PROPOSALS
FOR CONSTRUCTION OF
BOAT, BASIN, GAUGE WELLS, SEWERAGE FACILITIES, TRASH BOOM
AND
MISCELLANEOUS ROADS AND LANDSCAPING
BETWEEN
HAWKINS POINT AND WADDINGTON
ST. LAWRENCE COUNTY, NEW YORK
SPECIFICATIONS NO. PA-511033
ST. LAWRENCE CONTRACT NO. 43

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for Construction of Boat Basin, Gauge Wells, Sewerage Facilities, Trash Boom and Miscellaneous Roads and Landscaping between Hawkins Point and Waddington, St. Lawrence County, New York, until 11:30 A. M. Eastern Standard Time on the 27th day of March, 1958, at the Authority's office, 18th floor, the Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The estimated quantities of the principal items of work are:

Excavation, unclassified	114,000 cu. yd.
Foundation course gravel, stone base course, and and stone surfacing	20,000 cu. yd.
Bituminous macadam and asphaltic concrete	6,900 cu. yd.
Furnishing and installing guide rails	4,400 lin. ft.
Concrete in structures	225 cu. yd.
Structural steel in ramps and floats	55,500 lbs
Constructing gauge wells	3 gauge wells
Constructing septic tank, effluent pumping station, and chlorination chamber	one system
Installing trash boom	approximately 3,800 feet long
Topsoiling and seeding	52 acres

All of the construction work shall be completed on or before December 1, 1958.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at the 18th floor, the Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid

in an amount not less than 20 per cent of the maximum price bid for any bid schedule.

The right is reserved to make award on any one or more of the schedules, separately or in combination, as fully described in the Proposal, and to reject any or all bids.
W. S. CHAPIN
GENERAL MANAGER

Bids: April 1, 1958

Contract GWB-802.247

THE PORT OF NEW YORK AUTHORITY
GEORGE WASHINGTON BRIDGE
LOWER LEVEL EXPANSION
NEW JERSEY APPROACH
BORINGS

Sealed proposals for making borings and taking samples in New Jersey in connection with the lower level expansion of the George Washington Bridge will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P. M. on Tuesday, April 1, 1958, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman
New York, March 13, 1958

Bids: March 27, 1958.

Power Authority of the State of New York
Niagara Power Project

ADVERTISEMENT FOR PROPOSALS
for
The Furnishing and Delivery of Generator Main Leads—Isolated Phase Bus for Lewiston Power Plant
Specifications No. PA-N-25010
Niagara Contract No. NP 6

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the furnishing and delivery thereof f.o.b. University Siding, New York of generator main leads—isolated phase bus for the Lewiston Power Plant in Lewiston, Niagara County, New York, until 10:30 A.M. Eastern Standard Time on the 27th day of March, 1958 at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be publicly opened and read aloud.

Bids will be received for 13 sets of 15 kv isolated phase bus and associated equipment in accordance with the bidding schedule.

Delivery of the equipment will be required beginning on or before September 3, 1960.

Plans, Specifications and Proposal Forms for the work, may be obtained from the Power Authority of the State of New York, at 18th Floor, the Coliseum Tower, 10 Columbus Circle, New York 19, New York upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents, and five ($5.00) dollars per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.
W. S. CHAPIN
GENERAL MANAGER

OFFICIAL PROPOSALS

Bids: April 1, 1958

The Hydro-Electric Power Commission of Ontario

THE HYDRO-ELECTRIC POWER
COMMISSION OF ONTARIO
ST. LAWRENCE POWER PROJECT
CONSTRUCTION OF GRADE
SEPARATION
CANADIAN NATIONAL RAILWAYS
RELOCATION AT MILEAGE 68.1 AND
ST. ANDREWS ROAD (CORNWALL)

SEALED TENDERS, in quadruplicate, addressed to the undersigned, 620 University Avenue, Toronto 2, Ontario, and clearly marked

"TENDER FOR ST. LAWRENCE POWER
PROJECT
CONSTRUCTION OF GRADE
SEPARATION
CANADIAN NATIONAL RAILWAYS
RELOCATION AT MILEAGE 68.1 AND
ST. ANDREWS ROAD (CORNWALL)"

will be received up to 4.30 o'clock p. m., Eastern Standard Time, on

TUESDAY, APRIL 1, 1958.

The work consists of excavation and compaction of materials, pile driving, construction of concrete piers, abutements and wing walls, construction of concrete deck slabs, curbs, sidewalks, installation of handrail, laying of asphalt surface, completion of approaches and such other incidental work as outlined in the Commission's tendering documents C-615-57. This work shall commence within fifteen (15) calendar days after the date of receipt of notice to proceed and shall be completed November 30, 1958.

Copies of the tendering documents may be obtained on or after Wednesday, March 5, 1958, at the office of the Director of Supply, 620 University Avenue, Toronto 2, Ontario, on payment of twenty-five dollars ($25.00) for each set. This charge will not be refunded.

Tendering documents may be inspected at the above address and at the offices of the following: the Commission's Field Office, Cornwall, Ontario; Power Authority of the State of New York, Coliseum Tower, 10 Columbus Circle, New York 19, New York; and Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts.

Each tender must be accompanied by a certified cheque drawn upon a Canadian chartered bank payable to the order of The Hydro-Electric Power Commission of Ontario in the amount of 10 per cent of the total amount of the tender. Provision for the return of the cheque appears in the tendering documents.

The successful tenderer may be required to furnish a performance bond in the form approved by the Commission and issued by a bonding company licensed as such in the Province of Ontario and acceptable to the Commission for 100 per cent of the total amount of the contract.

The lowest or any tender will not necessarily be accepted.

E. B. EASSON
SECRETARY

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5028) will be received at Ogden, Utah until 10 a.m. Mountain Standard Time, April 15, 1958, for furnishing labor and materials for earthwork, pipe lines, and structures, Uintah Bench Laterals, Weber Aqueduct Lateral System, Weber Basin Project, Utah. Location south of Ogden, Utah. Principal items are 177,000 cu. yds. excavation; 580 cu. yds. concrete in structures; 2,720 lin. ft. 2-, 3-, and 4-inch steel pipe; 102,300 lin. ft. 3- to 36-inch pipe, optional types; installing 4 pumping units; and other work. Completion time 365 days. For particulars, address Bureau of Reclamation, P. O. Box 387, Ogden, Utah; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

OFFICIAL PROPOSALS

Bids: April 7, 1958.

Puerto Rico Aqueduct and Sewer Authority

Notice is hereby given that sealed bids for Section I of the San Juan Metropolitan Sewer District, the construction of the Martin Pena Sewage Pumping Station, will be received in accordance with the law by the Puerto Rico Aqueduct and Sewer Authority until three o'clock P.M. on the seventh day of April, 1958 at the office of the Authority in Santurce, Puerto Rico, and will then be publicly opened and read.

The work to be done comprises furnishing all materials and labor, tools, plant and equipment necessary for constructing, installing and completing ready for operation the Martin Pena Sewage Pumping Station, a reinforced concrete structure approximately thirty (30 m.) meters by seventeen (17 m.) meters in plan, with an initial installed pumping capacity of sixty (60) million gallons per day.

Copies of the plans and specifications may be examined without charge at the office of the Puerto Rico Aqueduct and Sewer Authority, Santurce, Puerto Rico, or at the offices of Buck, Seifert and Jost, Consulting Engineers, 223 Manuel V. Domenech Street, Hato Rey, Puerto Rico and 112 East 19th Street, New York 3, New York. Copies thereof may be obtained at the office of the Treasurer of the Puerto Rico Aqueduct and Sewer Authority, Stop 26½, Fernandez Juncos Avenue, Santurce, Puerto Rico or at the office of Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, New York, upon deposit of cash or certified check payable to the Puerto Rico Aqueduct and Sewer Authority in the amount of Fifty ($50.00) Dollars, which sum will be refunded upon return of the plans and specifications in good condition within thirty (30) days after the date on which bids are received or else the entire deposit will be forfeited.

Bids will be received only from persons who have requested the plans and specifications and made the required deposit therefore under their own names. These documents cannot be obtained later than April 4th, 1958.

OFFICIAL PROPOSALS

Each proposal must be accompanied by a certified check or bid bond from a reliable surety company authorized to do business in Puerto Rico and satisfactory to the Authority in amount equal to ten (10%) percent of the proposal. The certified checks will be retained to pay for any damage or loss to the Authority or the liability bond will accrue in case the successful bidder shall neglect or refuse to enter into a contract in accordance with his proposal.

The project will be financed in part by a grant-in-aid from the United States Government under the provision of Public Law 660, Water Pollution Control Act Amendments of 1956.

The Authority reserves the right to consider bids for sixty (60) days after their receipt before awarding any contract and the right is reserved to waive any informalities, and to reject any or all bids. The award will be made to the responsible bidder submitting the lowest acceptable bid, and the responsibility of the bidders will be determined by the Authority.

PUERTO RICO AQUEDUCT AND
SEWER AUTHORITY
By RAFAEL V. URRUTIA
Executive Director
BUCK, SEIFERT AND JOST
Consulting Engineers

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4979) will be received at Oak View, California until 10 a.m. Pacific Standard Time, April 17, 1958, for furnishing labor and materials for Pumping Plants, Ventura Avenue No. 1, Ventura Avenue No. 2, Ojai Valley, Upper Ojai and Rincon, Ventura River Project, California. Location near Ventura, California in Ventura County. Principal items are 17,000 cu. yds. excavation; 1,900 cu. yds. concrete; furnishing and installing steel intake and discharge manifolds; and other work. The work is divided into 3 schedules. Completion time 420 days. For particulars, address Bureau of Reclamation, P. O. Box 97, Oak View, California; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

EMPLOYMENT OPPORTUNITIES

*ADDRESS BOX NO. REPLIES TO: Box No.
Classified Adv. Div of this publication.
Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.*

POSITIONS VACANT

Opportunity for young Civil Engineer with actual experience in highway engineering. Career connection with National Organization having continuing interest in highway engineering, research, and construction. Give full details first letter. P-7291, Engineering News-Record.

Wanted—Prestressed Concrete Engineer. Experience in design, production and sales promotion preferred. Facilities are in process of construction, and as a subsidiary of large corporation, will expand with the market. Send experience resume, references, starting salary and availability for a personal interview. P-7292, Engineering News-Record.

Engineer or architect experience in field supervision. Commercial, industrial or mass housing. Experience in contract supervision and purchasing, also administrative details. Younger man preferred desirous of associating with growing organization offering possible future participation. Experience, salary, references. P-7236, Engineering News-Record.

Architectural draftsman for office with school and church jobs to plan. Experience preferred preparing detailed plans, structural steel design, specification writing, job supervision. Permanent position for qualified man. Write P. O. Box 31, Lancaster, Ohio, giving qualifications, experience and salary, or call Lancaster 01 3-4316 for appointment.

POSITIONS VACANT

Want Concrete Plant Supervisor familiar with Johnson Automatic Central Mix Plant. Please furnish references, education, experience and salary requirements. P-7387, Engineering News-Record.

Chief estimator needed long established heavy construction corporation Pittsburgh area. State all qualifications and salary requirements. P-7383, Engineering News-Record.

WANTED

SANITARY ENGINEER

With ten years experience. College graduate. Qualified for registration. Experienced in water and sewage plant design. Salary in five figures for the right man.

Floyd Browne and Associates
125 West Church Street Marion, Ohio

STEEL FORMS

Sales engineer to promote forming systems for concrete construction with architects, engineers, contractors, govt. agencies. Extensive experience in forms design, estimating, sales and field work necessary. Send resume.

P-7406, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

EMPLOYMENT OPPORTUNITIES

NATIONAL COVERAGE

The Advertisements in this section include all employment opportunities—executive, management, technical, selling, office, skilled, manual, etc.

Positions Vacant
Positions Wanted
Part Time Work

Civil Service Opportunities
Selling Opportunities Wanted
Selling Opportunities Offered

Employment Agencies
Employment Services
Labor Bureaus

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DISPLAYED

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

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$2.40 per line, minimum 3 lines. To figure payment count 5 average words as a line.

Position Wanted ads are 1/2 of above.

Box Numbers—counts as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW ADS or inquiries to Classified Adv Div of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36, N. Y. March 27th Issue Closes March 17th

SALES REPRESENTATIVE

or dealers wanted to sell concrete saw blades direct to road-builders and general contractors. Tremendous repeat sales . . . high commissions . . . provide an exceptional opportunity if you are now selling to concrete paving contractors. Submit complete data including territory covered. All replies confidential.

RW-7347, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SUPERINTENDENT

General Contractor will add to expanding organization man qualified for large projects run independently of main office. Should be thoroughly experienced in both field supervision and estimating to handle smaller jobs, as is sometimes necessary, with minimum of field help. Man wanted is not the "Project Manager" type, but one not afraid of the hard work required to meet costs on lump sum contracts. Well paid and continuous employment. Work generally in Eastern half of this country. Give full resume in reply, particularly records of cost and schedule compliance.

Blount Brothers Construction Company

P. O. Box 949 Montgomery, Alabama

WANTED

CIVIL and SANITARY ENGINEERS

Qualified by training and experience to serve as resident engineers on water and sewerage construction. Must be registered, or qualified for registration. Also qualified inspectors for Ohio municipal projects.

FLOYD BROWNE and ASSOCIATES

125 West Church Street Marion, Ohio

Wanted

CHIEF ESTIMATOR

Man experienced in public works construction for expanding medium-sized organization to take complete charge and assume full responsibility, including administration, of estimating section. Excellent opportunity and many advantages for the man having a successful history and background.

Send complete resume stating experience, background and salary desired.

ROSCOE-AJAX CORPORATION

1107-19th St. Washington 6, D. C.

POSITIONS VACANT

(Continued from preceding page)

Heavy Construction: Bookkeeper and Time Keeper. Submit qualifications including education and references. Must be available for interview. Reply to M. K. Craig, 121 North Main Street, Wharton, New Jersey.

Electrical Engineer—Supervision of electrical maintenance, preparation of contract specifications for electrical construction and equipment. Large medical research center desires applicants who have an electrical engineering degree from an accredited college plus 3½ years professional experience. Salary $8645 plus the opportunities, fringe benefits and protection of the Federal Civil Service Merit System. Send resume of experience and education to Personnel Officer, National Institutes of Health, Bethesda 14, Maryland.

Experienced Sewer, Grading and Paving Foremen—Steady Employment to qualified Men—Northeastern Ohio. Please reply, giving qualifications and experience, to P-7121, Engineering News-Record.

The Board of Control, Ketchikan Public Utilities, invites interested persons to submit their applications to fill the position of Utility Manager. The Ketchikan Public Utilities are municipally-owned and consist of Water, Telephone and Power and Light Generation and Distribution. Applications should be addressed to Mr. R. M. Hardcastle, Chairman, Board of Control, Ketchikan Public Utilities, P. O. Box 1019, Ketchikan, Alaska.

Traffic Engineer to head county traffic engineering staff. CE with grad work traffic. Min 1 yr exp respn chge traffic engr. Duties traffic studies, plans for signals, signs etc. Formal app sent to those who qualify. Mail brief resume to P-7436, Engineering News-Record.

Sales Engineer to introduce outstanding product in sanitary and water supply fields. Young, aggressive, well-financed company. Salary open. Location: Southeast. P-7437, Engineering News-Record.

Civil Engineer—22 to 35—New York area— for office, field, and possible eventual sales work with dewatering and soils stabilization company. Some travel. Send resume to P-7394, Engineering News-Record.

Civil Engrs., Bridge Designers, Draftsmen. Design work. Steven Antonoff Cons. Engrs., 806 Park Ave. Bldg., Detroit 26, Mich.

City Engineer—Civil Engineer, Graduate engineer, 5 yrs municipal engineering experience. Registered Engineer. Salary Open. Apply City Manager, Minot, North Dakota.

Young Man—(30-40)—Civil Engineer for costs, layout, expediting and co-ordinating the construction of bituminous road work. Car furnished, steady employment and advancement, wages commensurate with ability. Write Box 120, Haverstraw, New York.

Equipment Superintendent—Position open for Equipment superintendent to take complete supervisory charge of maintaining equipment for General Contractor in Eastern Pennsylvania. Permanent position. State previous experience and availability. Reply to P-7442, Engineering News-Record.

Resident Engineer—thoroughly experienced in construction of large sewage treatment and disposal facilities. Upstate New York location. Salary open. Reply to P-7444, Engineering News-Record.

POSITIONS VACANT

Arlington Heights, Ill. (23,000) Vil. Eng. Ill. license, eng. degree and considerable exp in municipal design & construction required. Apply F. R. Buechner, Vil. Mgr. Salary open.

A growing architectural-engineering and building firm has an opening for mechanical-electrical engineer. Must have had experience in design and supervision of mechanical and electrical equipment for industrial building and processing. Permanent position—excellent working conditions. Reply with complete resume—P.O. Box 349, Princeton, New Jersey.

Wanted—Construction Superintendent and Foreman. Must be experienced on reinforced concrete and pipe lines in Sewerage Construction. Please send resume including education, work history and salary. Requirements sent to P-7450, Engineering News-Record.

Chief Civil Engineer—Highways. Extensive administrative experience, modern highway design, either former state highway or consulting engineering experience acceptable. Salary high. Bonus incentive. P-7453, Engineering News-Record.

Milwaukee, Wisconsin—Assistant Expressway Engineer—$9609.96 to $11,540.52 per yr. Vacancy in Expressway Division, Milw. County Dept. of Public Works. CE grad & elig for registrn as prof engr in State of Wis; 8 yrs exper in municipal projects incl 4 in responsible supvsry or admin capcty. Sound annuity & pension system incl social security. Completed application to be on file before 4 PM Fri. March 21, 1958. Apply: Milwaukee County Civil Service Commission, Room 206, Courthouse, Milwaukee 3, Wis.

Construction Supt. with Trans. & Dist. experience for Electric Line Contractor located in Penna. Submit salary requirements, education and experience record. P-7482, Engineering News-Record.

Engineer, civil, or draftsman, first class only, experienced in field layout work; also engineer skilled in calculations, computations, quantity take-offs, drafting on large construction projects. Clerk administrative, capable as correspondent and writer, first class only, constructed office experience helpful; good at figures and typing. P. O. Box 402, Barre, Vermont.

Construction Engineers for large project in Ohio. Experienced in mechanical work or electrical work or planning and methods work. State age, education, experience and salary expected. P-7477, Engineering News-Record.

Civ. Engr. II-Gr.-21-Present Range $441/504, plus fringe benefits, vacation, sick leave, soc. sec. and state retirements. Preference to La Crosse residents and with completed military service. Age 21-40. Civil engineering training (graduation from accredited college of engr.) and experience required. State of Wisc. registration or eligible therefore. After 6 months prob. period must reside within city limits. Must pass health and oral examinations. Interviews required. Applications confidential. City application form upon request. Position available April 1st. Send complete record of education, experience and references to City Engineer, City Hall, La Crosse, Wisconsin. Phone 2-3464 or 4-5602. Desirable experience, hydraulics, city planning, traffic engineering, structures. On-job training, opportunity for advancement.

Bloomfield, Conn. is seeking a Town Engineer. Salary range $7400-$9000 plus $600 car allowance. Appointment may be above minimum—Liberal fringe benefits. Applications can be obtained from Town Managers Office, Bloomfield, Conn.

6—Concrete, asphalt, soils Engineer, Technicians and inspectors for immediate long term in Mid-western states. Salary range dependent upon experience and education. For consideration, send resume, snapshot, salary requirements and date available to Testing Service Corporation, P. O. Box 231, Villa Park, Illinois.

Engineering and estimating—young man required by established general construction firm, specializing in industrial and commercial construction. P.E. preferred—must be able to take off quantities, prepare cost estimates, and expedite construction projects. Give full details covering education, experience, references, salary and personal data. P-7490, Engineering News-Record.

(Continued on opposite page)

Manufacturers Representative

Covering New England: Looking for Additional Lines in the Building Construction Field. Have Excellent Connections with Architectural—Engineering Offices and General Contractors.

RA-7467, Engineering-News Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS VACANT
(Continued from opposite page)

Construction Superintendent for bridges etc. Steady employment to qualified man, Dakota location. Please reply P-7429, Engineering News-Record.

POSITIONS WANTED

Construction Superintendent now employed desires job with general contractor on estimating, sub-contractors, shop drawings, scheduling, costs, etc. PW-7034, Engineering News-Record.

Equipment Superintendent-Master Mechanic experienced in the supervision of all phases of shop management, repairing, maintenance and operation of large fleets of earth moving equipment, paving spreads, erection of asphalt or concrete plants. Presently nearing completion of contract in middle East Country, best of references, resume on request. PW-7428, Engineering News-Record.

Foreign Assignment—Civil Engineer available for assignment—preferably Europe, Far or Middle East. 10 years experience, concrete, steel design, construction, harbour work, dredging. Speaks English, French and Spanish. PW-7431, Engineering News-Record.

Civil Engineer, age 33, B.S.C.E. Twelve years experience that includes office procedure, drafting, surveying, building construction, electrical distribution, steel design, and hwy. field construction. Desire a permanent position in construction engineering with responsibility and future possibilities. Excellent references. Preferable location—Northeast U.S. section. PW-7433, Engineering News-Record.

Mechanical Supt., asst. Job Supt. Industrial, Chemical, Power Plants, Refineries. Age 42—South, Southwest, Foreign. PW-7300, Engineering News-Record.

Superintendent (carpenter) Formwork, reinforced concrete, bridges, hospitals, railroad terminals, schools, treatment plants, 11 years general construction supervision experience. Age 35. Will locate Los Angeles California vicinity. PW-7388, Engineering News-Record.

Construction Supt.—BSCE, 40, 20 years exp., now employed, desires job with general contractor. Field supervision, scheduling, labor relations, cost analysis, direction of subcontractors on industrial and chem. plants and public buildings. PW-7356, Engineering News-Record.

Canadian Supt. 15 years experience, all phases of plant construction and "Mechanical" trades. Central or remote sites. Can supply staff if required. W. J. Macdonald, Norcanda, R.R3, Bancroft, Ont., Canada.

Surveyor—Graduate Civil Engineer, licensed land surveyor, 15 years experience on surveys of sub divisions, municipal projects, irrigation works and heavy construction. PW-7478, Engineering News-Record.

Cost Engineer—Civil, Architectural. Experienced construction cost all types of heavy and light structure. Desires full time or short term connection as cost consultant with Arch-Eng'r construction firm, Multi; plant owners, foreign, domestic assignments. PW-7451, Engineering News-Record.

Eng/Supt—37—varied construction, sewers, waterlines, earthworks, field engineering. Supervision, estimates, costs, take-offs. PW-7448, Engineering News-Record.

SELLING OPPORTUNITY WANTED

Consulting Civil Engineer, office in South Florida desires to represent national engineering firm in Florida and Caribbean area. RA-7422, Engineering News-Record.

WORK WANTED

Structural drafting, shop drawings, computations, models, perspectives. Alexander's, 310 Turner Place, Ithaca, N. Y.

Structural Designers P.E.'s, contract or per diem, your office or ours, N.Y.C. WW-7390, Engineering News-Record.

SEARCHLIGHT SECTION

(Classified Advertising)

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STEEL BARGES and WILEY WHIRLEY FLOATING CRANES

**Capacity
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100 tons**

Continuous Production
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Crane Shown 40 Tons, 40 Ft. Radius
With 20′ Turntable, 100 Ft. Boom

HAVRE DE GRACE SHIPYARD INC.
Havre De Grace, Maryland

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING

OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations Forty third year

WILSON *Engineering Corp.*
College House Offices HARVARD SQ CAMBRIDGE MASS

NEW PRODUCTS WANTED

Well-known midwest construction equipment manufacturer with complete production and merchandising facilities will pay well in cash or royalties for new construction products. Write:

BO-7144, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.*

CONTRACT WORK WANTED

Design, specifications, contract drawings, for all types of simple, continuous, and long span bridges. Tight time schedules met. Professional Engineers. Bridgeway Associates, 127 Liberty St., N.Y.C.

SPECIAL SERVICE

Accurate quantity take-off and estimates. Architectural, Mechanical and Electrical. Pub. Wks. Commercial and Industrial. Chas M. Walker B.S. R.E. Phone F1-6-0647, 114½ E. Univ. Ave., Champaign, Ill.

BUSINESS OPPORTUNITIES

S.E.C.M.O. Corp. Consulting Engineers. Concrete and Prestress Design (All Systems). Water works & Industrial Hydraulics—Earth Dams & Embankment Design—Bridges and Plants. S.E.C.M.O. Corp. wishes enter in touch with American Consult. Engineers in order to set up collaboration. 83, rue de Villiers—Neuilly s/Seine—(France).

FOR LEASE

Approximately 400 sq. ft. available in architects office for independent structural engineer. Frequent work available. Possible future association. 160 E. 56 St., New York. Phone Plaza 1-2465.

At Your Service . . .

These Classified Sections are at your service to bring business needs or "opportunities" to the attention of men in executive, management, sales and responsible technical, engineering and operating capacities with the industry served by this publication.

GOV'T SURPLUS CRANES & TRACTORS

LORAIN 820 with shovel Ser. 19257, 14,000
Link-Belt LS8-w/40′ boom & Fairleads, 6,000
(3) BE-15B's with booms, shovels or hoes, ea. 7,500
(3) Lorains TL25K-Unused, ea. 11,000
Lorain Motorcranes MC3 & MC4, 8,500
Bay City T66 50′ boom & Fairleads, 19,500
General 307 Self Propelled, 8,500
D7 4T series, unused since rebuilt, 7,500
D7 3T series, with D7N Hyster, 8,500
D7 6T series, DOPCU and blade, 5,250
D4 Several to choose from, 2,400

THE U. S. TRUCK SALES CO.
1750 East 55th St. Cleveland 3, Ohio
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LOW COST INSTALLATION AND OPERATION

CABLEWAYS
IMMEDIATE SHIPMENT
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FOR
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48B Bucyrus Erie Shovel diesel 2 cy
10,000′ 9″ x 9″ road forms
1,550′ 6″ x 6″ road forms*
2,500′ 16″ x 12″ airport forms*
***Used four months only**

WILLIAMS CONSTRUCTION COMPANY
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FOR SALE
8″ DREDGE

18′ x 35′ hull, Georgia pump, G. M. 6-71 and G. M. 2-71, 500′ of pipe, excellent condition.

COAST DREDGING CORP.
Box 22 ***Phone AXtel 6-2479*** **Tuckerton, N. J.**

FOR SALE

AIR COMPRESSOR LEROI 105 on G.M.C. 6 x 6, like new.

FRONT END LOADERS, Model C Scoopmobile.

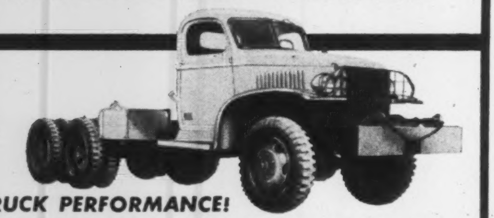
JESSE SHURTER
Samsonville, New York

FOR RENT
3900 MANITOWOC LIFTCRANE

Only 9 months old—in excellent condition—70 ton capacity—160 foot boom—30 foot jib—torque convertor and manual control—located in western Pennsylvania—will move anywhere on long term lease.

STANDARD STEEL SERVICE, INC.
P. O. Box 929, Johnstown, Pa.
Phone 37-8451 or 37-7901

GMC 6x6 NAMED ARMY'S BEST ALL-AROUND TRUCK!



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- **Double Traction for Mud!**
- **Special "Off Road" Design!**

UNUSED!

GUARANTEED! NEW-TRUCK PERFORMANCE!

From Government Storage — these all-wheel-drive GMC 2½ ton 6x6's were specially designed by the U. S. Army to take the roughest terrain in all kinds of weather. These unused 6x6's can do the same job for you in all your truck jobs; whether in a muddy field or along a super highway. Processed—by Memphis Equipment Company—down to the last bolt to assure you of receiving the finest unused GMC 2½ ton 6x6 trucks available today. Parts available anywhere in the nation.

For specifications, prices, delivery—write, wire or phone collect—JAckson 5-7841

MILTON Y. TOOMBS, JR. Sales Manager

MEMPHIS EQUIPMENT Company

ARMY TRUCKS • PARTS
CONSTRUCTION EQUIPMENT
766 SO. THIRD STREET • MEMPHIS, TENNESSEE

ALL SIZES
NEW • USED

HY DRACHMAN STEEL CORP.

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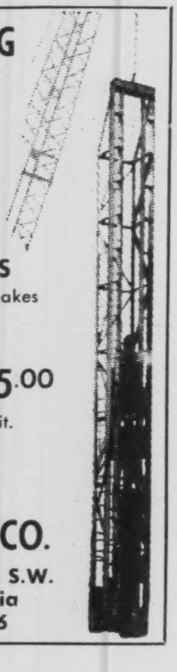

20' or 30' Sections.
Hammer Weight
2500 Lbs.

BRAND NEW GOV'T SURPLUS

Adaptable to all makes Machines.
($2,000 value)

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For Complete Unit.
F.O.B. Atlanta

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FOR SALE

- 1—Single Drum Hoist Ottumwa 150 H.P.—2300 volt—60 cycle—3 phase
- 1—55' Headframe for 2 comp. shaft.
- 3—21—Eimco Tunnel Muckers—24" gauge
- 20—2½ cy. Watt Muck cars, side dump 24" gauge with "Can't-Miss" Couplers
- 5500'—of 18" Naylor Fanline with Couplings
- 1—Jeffrey Pan Feeder
- 4—Canton Car transfers, for 24" gauge track

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Ph. ST. 1-1950

SPRING SPECIAL
USED EUCLID SCRAPERS

10—Model 8TDT-14SH 6 wheel rubber tired, 15½ yd, powered by 275 H.P. Cummins Diesel, and 10 speed transmission. New 1952. Located in MidWest and priced right for immediate possession. All offered subect to prior sale or disposition.

L. B. SMITH, INC.

357 W. Fayette St. Syracuse, N. Y.
Phone: GRanite 5-2196

SHOVELS - DRAGLINES DOZERS - DRILLS

1201 Lima Dragline, 80', 3½ yd.
65 Bay City Shovel, 1¼ yd.
HD-20 Hyd. Dozer w/Cable Cont. Unit
D-7 Cat Dozer
TD-18A International Dozer
AD-3 Motor Grader
HM-2B Hough Payloader
Model 36 Compton Coal Auger (28")
200 Amp. Lincoln Arc Welder
Gardner-Denver Air Comp. 1056 FM @ 125 PSI.
Sullivan Core Drill, Hyd. Rotary Type, Complete with 210 Ft. "A" Rod & 60 Ft. "N" Rod, "A" & "N" Core Barrel, Diamond Core Bits, Carbide Bits, etc. Mounted on New Dodge Tandem Truck W/Power Steer, Drill Rig Self Contained W/Built in 500 Gal. Water Tank. Model 106 McCarthy Vertical Rock Drill W/Augers & Tools.
Model 103 McCarthy Horizontal Rock Drill W/Augers & Tools.
New Hossfeld Prospect Drill—Never Uncrated Shovel Front for 1201 Lima, 3 yd., Good Condition.

Excellent Condition—Located at Portersville, Pa.
Contact:

W. R. WINTERS
1750 N. W. 14th Ave.
Gainesville, Fla.
Ph. *Franklin 2-2357*

or

W. J. WINTERS
R. D. 1
Prospect, Pa.
Ph. *2302*

LOCOMOTIVES BLOWER — DRILLS

Two 80 ton G. E. Diesel-Electric Locomotives. Like new—built 1955. 42" track gauge, will alter to suit.

One Ingersoll-Rand Motor Blower, Type FS—never used.

Four Blast Hole Drills, Bucyrus Erie 42 T Electric, with accessories. In good operating condition.—Bargain price.

1—Joy Axivane Series 1000 Fan, Model 42½ 26½ with drive and 25 H.P. Motor, 250 Volt, D.C.—1150 B.D., 30000 C.F.M. at 3" W.G., Complete with drive and 25 H.P. Motor, 250 Volt, D.C.—Excellent Condition.

COALDALE MINING COMPANY, INC.
Lansford, Pennsylvania
Lansford, 1619

FOR SALE

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Liftcranes

Forsythe Equipment Co., Inc.
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PIPE SUPPLY CO., INC.

PILING • PIPE • CULVERTS • VALVES & FITTINGS

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Seamless and Welded Steel Pipe
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Call GEdney 9-6300
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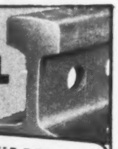

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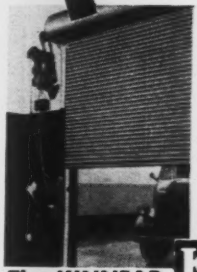

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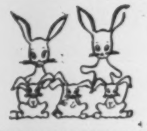

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Highway Tax Diversions

Federal budget makers (ENR Feb. 20, p. 132) are not the only people who would like to cut in on the income from gasoline taxes. State budgeteers also would like to be able to spend money from the same source on projects having no connection with highways. And in this regard they have been all too successful, judging from the fact that diversions of highway tax income to non-highway purposes reached an all-time high of $325 million in 1956, the latest year for which figures have been compiled by the Bureau of Public Roads. New Jersey led, diverting 36.7% of the total it received from gas taxes.

Fortunately, 27 states now have constitutional amendments forbidding the diversion of gas-tax income to other than highway purposes. Unfortunately, these anti-diversion laws do not deter the diverters, but only make life more difficult for them. For example, in Massachusetts, a bill in the legislature would amend the state's anti-diversion law to allow the diversion of gas-tax income to help pay the deficits of the Metropolitan Transit Authority. It is argued that better rapid transit reduces congestion on the highways, and thus there is justification for using gas-tax income for improved transit facilities.

The lesson in this is clear. All who want gas-tax income spent only on highways must be on guard constantly. Even at the federal level they must be ready on a moment's notice to concentrate their forces for the defeat of legislation proposing to divert highway tax income from highway purposes. The would-be diverters are good at making plausible arguments in support of their proposals, hence the defenders of highways need to be ready with even better explanations of why the money in question should be spent on roads, which generate the funds in the first place.

Topnotch Service of Supply

The construction industry was never better served by the producers of its essential materials and equipment than it is today. Materials producers, such as those of structural steel and cement, have expanded their capacities, modernized their facilities and located new plants in the faster growing parts of the country. Manufacturers of construction equipment, at the same time that they have improved their machines, have enlarged their plants, made them more efficient and developed capable distributor and maintenance organizations reaching into every nook and cranny of the country. As a result, construction's service of supply was never in such topnotch condition.

A case in point is exemplified by the new Dade County plant of the Lehigh Portland Cement Co., whose construction is described in an article in this issue (page 50). This new plant, with an output of 2.5 million barrels a year, will serve an area whose cement consumption over the past decade has increased many times faster than the national average.

Lehigh, moreover, has done much more to improve its service of supply than to invest $25 million in Florida. Last year, for example, it replaced an obsolete 1.1 million barrel plant with a new 3.1 million barrel facility costing $27 million, to serve the Baltimore-Washington area, and it is adding 1 million barrels to the capacity of another plant to serve the Midwest region centering on Minneapolis-St. Paul. By the end of this year, Lehigh will have spent a grand total on new plants Lehigh will have spent a grand total of $168 million on new plants and improvements since the war.

Such examples can be drawn from every element of the construction supply industry. All of this development has taken foresight, courage and, above all, confidence in construction's future. This is a point to be remembered during this "rest period" in the economy. The future may not be as distinct as it sometimes has been, but the pattern of growth, to which the country is committed, has in nowise been altered. A firm basis for this growth exists in construction's enlarged service of supply, which, in addition, should increase construction's efficiency markedly when its next upsurge in activity begins.

Pointless Argument

For stating that the public interest is "best and most economically served" by public engineering organizations, the U.S. Chamber of Commerce has laid itself wide open for criticism from consulting engineers. In fact, some already has been received—in the form of a duly adopted resolution by the Consulting Engineers Association of California—chiding the Chamber for a departure from its avowed policy of supporting private enterprise.

Basis for the argument is a new Chamber of Commerce booklet, "Businessmen's Guide to the Road Program," in which the following statement appears, "Engineers today are in great demand. Both federal and state highway organizations already are being raided by outside organizations. Of course there is a place for the consulting engineer in this work, but remember that, for the long pull, the public interest will be best and most economically served as the tax dollar is invested in your own public engineering organizations."

Such a broad, positive statement is properly subject to question. Sometimes tax dollars are better invested in public engineering organizations, sometimes it is more economical to hire consultants. Just as frequently it is wise to use both. Only by weighing the merits on each particular case can the proper decision be made. It is pointless to argue the question in general terms.

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Blast Furnace Slag • Blocked Ore • Chemicals • Concrete Pipe • Concrete Block & Brick • Ready-Mix Concrete • Crushed Stone • Chemical Flux Stone "Enslag Colmix" Paving Materials • Hot & Cold Mix Paving Materials • Gravel & Sand • Expanded Slag • Iron Recovery • Steel Scrap • Tin Recovery • Prestressed Concrete Members • "Teckote" Protective Coating for concrete pipe.

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"We get good results from Yellow Strand Wire Rope... have used it for 5 years..."

Vandewater Contracting Co.
Liverpool, New York

One of Vandewater's cranes is shown lifting a skip of concrete to complete pouring on the new $3,000,000 women's dormitory at Syracuse University, Syracuse, New York.

1″ non-spinning Yellow Strand is used on the skip line and ⅞″ and ¾″ Yellow Strand is used elsewhere. The crane carries a 145′ boom and loads on this job go up to 15,000 lb.

President of the firm, Wm. J. Vandewater, says, "We have used Broderick & Bascom Wire Rope for the past five years with good results."

Construction men prefer Yellow Strand Wire Ropes for many reasons. They're tough, strong and resistant to wear. A type is available for every use, including Flattened Strand and Extra High Strength Yellow Strand "POWER-STEEL." All B & B Wire Ropes are tops for quality materials and precision manufacture. Another big, important advantage: Wherever your job, Yellow Strand is always near at hand. Your B & B Distributor will help you select the right wire rope for your equipment. Call him today for his expert service. Broderick & Bascom Rope Co., 4203 Union Blvd., St. Louis 15, Mo.

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